Corporate governance and earnings management evidence from China

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Award date:
2021

Awarding institution:
Coventry University

Corporate Governance and Earnings Management: Evidence from China

By

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Submitted in accordance with the requirements

for the degree of Doctor of Philosophy

Coventry University

Coventry Business School

May 2020

Acknowledgement

I want to express my special thanks to those who have helped me to complete the study during my PhD. Special thanks to your supervisory supervisors for my PhD, Dr Jun Wang and Dr Hailin Liao and Dr Graham Sadler; they showed me the great fun of financial research, as well as their patience, encouragement, and tremendous help to grow me into a researcher. I am very grateful for their support for my academic research and academic writing.

I would also like to thank the examiners of the PhD students for their upgrades, Dr Sina Yekini and Dr Jim Clarke. Their insightful comments and these suggestions have greatly improved my doctoral research. Thanks to Coventry University and all faculty and staff for their support.

In the end, Thanks to my parents for their great support and encouragement, their sacrifice and love are the essential lasting support for me. Moreover, I got great kindness during my PhD study, and I would like to thank the friendship of Dr Tan Huizhu, Dr Liu Xiaowei, Dr Lin Lin and Master Wang Yuhan.

Abstract

This thesis explores the relationship between the corporate governance and earnings management in director’s background and the relationship between the CEO and the controlling shareholder. Moreover, as this study is based on the Chinese market, and there some difference from west market. Therefore, this study will also discuss the difference Chinese market and west market, and improve the Jones model to measure earnings management in Chinese market.

This study tend to address the following questions. First, how to measure earnings management for Chinese listed companies using Chinese accounting standard? Second, whether the directors' background influences the firm's earnings management. Third, whether the relationship between CEO and controlling shareholders has an impact on the firm's earnings management, all empirical chapters focus on Chinese listed companies.

Firstly, previous research about earnings management uses the Jones model and various Jones-based model (like the modified Jones model, performance-adjusted model) to measure company's earnings management. These models were developed based on Western accounting principles, which is different from the Chinese accounting standards. There is some measurement error when using these models to measure the company's earnings management in the Chinese market. This studydevelop a new model based on Chinese new accounting standards, which was issued in 2007. The results indicate that the new model developed is better than previous models used in literature.

Secondly, based on the new model developed about how to measure earnings management for Chinese listed companies, this study investigate the impact of the director's financial background on the company's earnings management. The results show that the effect on the company's accrual earnings management is *negative*. In contrast, the impact on the company's real activist's earnings management is *positive* when the director has some financial education or work experience. These results indicate that directors with financial background tend to help the controlling shareholder to manipulate earnings through real activities rather than accruals.

Finally,this study investigate the impact of the relationship between the CEO and controlling shareholder on the company's earnings management. Same as the above,this study use the new model measuring earnings management. The results show that when the controlling shareholder's shareholding at a low level, there is a conflict between the CEO and controlling shareholder. However, as the increasing of the controlling shareholder's shareholding, the CEO tends to collaborate with the controlling shareholder to manipulate the company's earnings.

This study developed a measurement model more suitable for the characteristics of the Chinese market, making it more accurate and effective. Based on the data analysis of the annual reports of domestic listed companies, the degree and scale of financial manipulation can be detected more effectively. This study suggests that policymakers pay particular attention to the background of directors. A financial background gives directors the ability to help companies manage their earnings. Policymakers also need to pay attention to the relationship between the CEO and the controlling shareholders.

The CEO tends to help the company to do earnings management if he/she is working for the controlling shareholder.

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LIST OF ABBREVIATIIONS

2SLS	**Two-stage least squares method**
ACCA	**the Association of Chartered Certified Accountants**
CEO	**Chief executive officer**
CFA	**Chartered financial analyst**
CPA	**Certified public accountant**
GAAP	**Generally accepted accounting principles**
GLS	**Generalized least squares**
GMM	**Generalized method of moments**
IAS	**International accounting standards**
IFRS	**International financial reporting standard**
IPO	**Initial public offerings**
OLS	**Ordinary least squares**
SEO	**Seasoned equity offering**
SOE	**State-owned enterprise**
TRA	**Tax law reform regulation**
WLS	**Weighted least square method**

Chapter 1: Introduction

1.1 Motivation

Compared with western countries, the research earnings management in China starts relatively late. Chinese research on earnings management is mainly carried out in two aspects. First of all, many Chinese scholars are still summarizing the experience and conclusions of western studies. Their work mainly focuses on literature review and translation, but there are few systematic monographs. On the other hand, some scholars focus on the existence of earnings management and the factors that affect earnings management. For example, Jiang H(1998) studied the earnings management of listed companies and found that companies tend to overstate their profits. To avoid delisting risk, firms delay losses and concentrate on recognizing them for a year. Wang Y(1999) found that earnings management of listed companies was related to the regulatory policies of the government. Chen X(2000) found that listed companies carried out earnings management in order to meet the regulations of regulatory authorities on rights allocation through studying rights allocation, etc.

However, the results of many previous studies are not consistent with those of western studies. For example, the setting of independent directors in China does not have a significant impact on earnings management. In contrast, in western studies, the setting of independent directors is an effective means to curb earnings management.

In general, when encountering such a situation, researchers usually explain the differences between Chinese and foreign markets, such as different government

regulatory policies or different levels of market development.

However, previous researchers have long overlooked the fact that the earnings management measurement model they used in their study was based on the international accounting standards (IAS). In other words, the earnings management measurement models used in western countries are not necessarily applicable to the Chinese market, and the earnings management of companies calculated by them is not always accurate. This may also be the reason for the differences between Chinese and foreign studies.

Earnings management plays an essential role in research on corporate governance, and the measurement of the company's earnings management is the most crucial question in the study. Most previous studies tend to use kinds of improved Jones model, which is developed based on the International Accounting Standard (IAS), to calculate the degree of the firm's earnings management. In 2007, China issued the new <Accounting Standard for Business Enterprises>, and because of the difference of the state system between China and West countries, there is much difference between the IAS and the Chinese new accounting standard. Hence, the calculation of the earnings management in the Chinese market by kinds of improved Jones model is not accurate. Therefore, the result of earnings management studies based on the Chinese market may not be accurate and rigorous. Thus, this motives me to improve the Jones model based on the new Chinese account standards to make sure that the earnings management detects in the Chinese market is accurate. And then to use the

new model to calculate earnings management and detect the relationship between corporate governance and earnings management.

1.2 Aim and objectives

The first objective of this study is to build a new model to detect the firm's earnings management in the Chinese market more accurate based on the Jones model. To achieve this objective, this study will compare the new Chinese accounting standards and the IAS and discuss the influence of these difference on the company's earnings management. And then, to improve the Jones model to make the calculation of the earnings management more accurate.

Furthermore, this study aims to research the relationship between corporate governance and earnings management from two angles. The first angle is from the impact of the director's financial background on earnings management. Previous studies find that if a director with the financial professional title CPA, His supervision on the manager will be more effective (Jihong, Lizhu 2014) However, the CPA is not the only measure of the director's financial background, the director with a professional title like CFA, and senior economists also could to measure the director's financial background. Thus, the second objective of this study is to measure the director's financial background more accurately and then to research the impact of the director's financial background on the company's earnings management.

At last, according to the previous research, as the increase of the shareholding of the majority shareholder. The principal contradiction of agency problem has changed

from the contradiction between managers and shareholders to the composition of major shareholders and minority shareholders (Porta, Rafael La, Lopez-de-Silanes et al. 1998). However, it ignored that what role of the managers play in this situation. Therefore, the last objective of this study is to research the impact of the relationship between the CEO and the controlling shareholder on earnings management.

1.3 Research Questions

To improve the Jones model based on the new Chinese accounting standard and make it suit the Chinese market. This study will focus on the following questions:

1) What is the difference between the new Chinese accounting standard and IAS?

2) Dose these differences affect the firms' earnings management?

3) How to improve the Jones model to cover the effect of these difference on the company's earnings management.

Moreover, to study the impact of the director's financial background on the company's earnings management, this study will focus on the following question:

1) What is the effect of directors with a financial background on the company's earnings management?

In order to study the impact of the relationship between the CEO and the controlling shareholder on the company's earnings management, this study will focus on the following question:

1) If the company's CEO comes from the controlling shareholder, does the CEO will

to help the majority shareholder against the minority shareholders?

1.4 Research Findings

Through the comparison and discussion about the difference between the new Chinese accounting standards and the IAS, the new Chinese accounting standard includes investment income into the company's earnings. However, according to the IAS rule, investment income is into the gains but not earnings. Therefore, in the Chinese market, the investment income is a part of earnings, but the Jones model does not measure it. Thus, this study adds the cash flow from investment to calculate the total accruals (TA) and combines the investment income to measure the discretionary accruals.

Moreover, through empirical analysis based on the investment marched Jones model, this study found that if the director has some financial background like professional title or work experience, the effect on accruals earnings management is negative. However, the impact on the company's real activist's earnings management is positive.

Furthermore, the relationship between the CEO and the controlling shareholder will change from conflict to cooperation as the increase of the controlling shareholder's shareholding. The relationship between the CEO and the controlling shareholder is conflicting when the controlling shareholder's shareholding at a low level and the effect on the earnings management is negative. However, as the increasing of the controlling shareholder's shareholding, the CEO tends to collaborate with the

controlling shareholder to manipulate the company's earnings.

1.5 Contributions

1.5.1Methodological contributions

The first contribution of this study is to the research about earnings management. Previous research about earnings management generally based on the Jones model but did not consider the factor that the accounting standard may differ in different countries. And these difference may cause the inaccurate of the measurement of earnings management in different countries. If a researcher uses the erroneous result to detect the relationship between the earnings management and other factors, it will come to a conclusion that is not consistent with the facts and mislead subsequent studies. this thesis proposes to modify the model according to the local regulations, and improved the Jones model based on the Chinese accounting standard. It provides a more appropriate tool to post-location studies on Chinese earnings management.

1.5.2Empirical contributions

Moreover, this study has contributions to the literature. Firstly, this thesis has expanded the definition of the financial background beyond the CPA work experience. Then uses the empirical analysis based on the new modified model to find the result that a director with a financial background will help the company to reduce the accruals earnings management but to increase the real activities earnings management.Secondly, this thesis has shown that the impact of the relationship between the CEO and the controlling shareholder on the company's earnings management. When the largest shareholder's shareholding at a low level, the relationship between the CEO and the controlling shareholder is conflict, and the company's earnings

management suppressed. However, as the increase of the controlling shareholder's shareholding, the CEO tends to help the controlling shareholder to again with minority shareholders.

1.5.3 Theoretical contributions

The agency theory has thoroughly discussed the relationship between managers and shareholders, and later Sheleifer and Vishny (1997) further proved the contradiction between majority shareholders and minority shareholders.However, what role do managers play in the conflict between large shareholders and small shareholders? Should managers help large shareholders to infringe the interests of small shareholders or help small shareholders to fight against and monitor large shareholders?The research in this aspect has been a blank of agency theory.

Based on the setting of whether the manager works for the major shareholders. this thesis discusses the behaviour of the manager in the conflict between the majority shareholders and the minority shareholders, from the perspective of earnings management.It finds that the manager will help the majority shareholders to infringe the interests of the minor shareholders in the contradiction between the major shareholders and the minor shareholders, which makes up for the agency theory.

1.6 Structure of This Thesis

This study includes six chapters as following.

1. Introduction,
2. Literature review,
3. How to measure earnings management,
4. Directors with a financial background and earnings management,

5. The Influence of Relationship between the CEO and Largest Shareholder on Earnings Management,
6. Conclusion.

The first chapter is the introduction of this thesis which include the motivation, aim and objective, research questions, research findings and contribution. The second chapter is the literature review which is briefly the relevant literature about the earnings management research. Chapter 3 is to discuss the difference in the Chinese new accounting standards and improve the Jones model based on these standards. Chapter 4 present the empirical analysis result of the impact of the director's financial background on earnings management. Chapter 5 has shown the empirical analysis result of the impact of the relationship between the CEO and the controlling shareholder on earnings management. At last, chapter 6 is the conclusion of this study.

Chapter 2: Literature Review

There are a great number of studies studying earnings management. Given the limited space of this dissertation,this study will briefly review the relevant literature about earnings management from the following six perspectives, 1) corporate governance and earnings management; 2) equity offering and earnings management; 3) ownership structure and earnings management; and 4) tax and earnings management. 5) directors' background and earnings management; 6) models use to measure earnings management.

2.1 Corporate Governance and Earnings Management

In this section,this study briefly review literature about the relationship between corporate governance and earnings management from the following perspective: 1) the relationship between audit and earnings management; 2) the relationship between board characteristics and earnings management.

2.1.1 Audit and Earnings Management

An external independent audit can improve the quality of financial reports, reduce agency costs, and provide relatively reliable information for investors to make decisions. High-quality audit work can effectively find out earnings manipulation and correct it or have a restraining effect on management opportunism behaviour so that the financial report can reflect the company's operating performance more truly. The primary purpose of independent auditing is to solve the problem of information

asymmetry in the principal-agent system, which requires certified public accountants to provide high-quality auditing services to ensure the effectiveness of decisions made based on the information in financial reports. Internal corporate governance and external audit supervision interact to influence the earnings management behaviour of listed companies.

From the perspective of external auditing, DeAngelo (1981) investigate the relationship between the size of accounting firm and the audit quality. He/she finds that there is a positive relationship between the size of accounting firm and the audit quality.He/ she argues that the quality of the audit report may be different because of auditors from different accounting firms, even they have the same professional ability. As larger firms have large number of clients, they will take more loss if they failed to find the abnormal earnings in clients' annual report. The results indicate that larger accounting firms have more ability of prevent the earnings management. Dopuch, Simunic (1982), Teoh, Wong (1993), Defond, Jiambalvo (1993) and Becker, DeFond et al. (1998) also investigate the relationship between earnings management and external auditing. They find that firms' earnings management is more likely to be prevented by external auditor if the audit report is issued by larger accounting firms, which is consistent with the study of DeAngelo (1981)

Defond, Jiambalvo (1993) find that auditors are more sensitive to positive earnings management rather than negative earnings management. In addition, the quality of audit report is also affected by the industry expertise of auditors, and the relationship

between earnings management and industry expertise of auditors is negative (Bonner, Lewis 1990; O'Keefe, Simunic et al. 1994, Deis Jr, Giroux 1992, Bedard, Biggs 1991)

From the perspective of internal auditing, some studies find that earnings manipulations are negatively related to whether a firm has audit committee in board (McMullen 1996). In other words, firms are less likely to manipulate their earnings if they have audit committee in their boards. Beasley (1996), Dechow, Sloan et al. (1996), Cheng, Farber (2008)point out that if there are some professional auditors in audit committee, and earnings manipulation can be prevented. Bedard, Johnstone (2004) has shown that the number of independent directors sitting in audit committee will influence on firm's earnings management. Particularly, Bedard, Johnstone (2004) finds that with the increase in the number of independent directors sitting in audit committee, the degree of firm's earnings management will decrease.

A high-quality external audit can effectively restrain accrual earnings management, but at the same time, the motivation of earnings management does not decrease. When earnings management of accrued profits is forced to decrease due to external audit, companies will turn to real earnings management, even with a high cost.

Chi, W (2011) found that high-quality audit would restrict accrual earnings management when their study focuses on companies with strong earnings management needs. However, companies would choose more hidden real earnings management.When Alhadab, M (2018) studied the impact of audit on real earnings management during IPO, it could effectively reduce the real earnings management through expenses. However, the company would still conduct real earnings management through sales at the end of the year.

2.1.2 Board Characteristics and Earnings Management

Previous studies have found that board characteristics have significant influence on firms' earnings management. For example, Lipton, Lorsch (1992) point out that There is a negative relationship between board size and the monitoring effectiveness of the board. In particular, with the increase in the number of directors sitting on the board, the problem of the free ride will exist. Therefore, the quality of monitoring function of the board will decrease, which in turn, the degree of earnings management increases. However, according to the results documented byXie, Davidson III et al. (2003), Xie (2003) find that with the increase of the number of directors sitting on the board, the possibility that there are some directors with financial professional background sitting in the board increases. Thus, the quality of monitoring function may increase, which in turn, the extent to which firms manipulate their earnings decreases.

Moreover,Dechow, Sloan et al. (1996) finds that independent directors can prevent the earnings manipulation. Klein (2002) points out that firms with high proportion of independent directors sitting on the board tend to prevent their earnings manipulation. Beasley (1996) finds a negative relationship between earnings management and board independence. Beasley (1996) argues that with the increase in the number of independent directors sitting in the board, the independence of board will improve (Klein 2002). Thus, the earnings management may be prevented.Xie, Davidson III et al. （2003) also show a negative relationship between the proportion of independent directors in the board and earnings management. However, Clarke, Ferris et al. (2006)

shows that this relationship is not significant in China. Dechow, Sloan et al. (1996) also points out that whether the chairman of board also works as CEO will affect firm's earning management. Given that CEO is supervised and monitored by the board of directors, if the chairman of the board also works as a CEO of this firm, it tends to more likely to manipulate earnings because of lacking monitoring function.

Based on the studies focusing on the listed companies in China, Hu Luanming, Tang Songlian (2008) investigate whether the independent director with financial background and the proportion of independent directors sitting on the board have impact on the degree of earnings management. Hu Luanming, Tang Songlian (2008) find that if the independent director has financial background, he/she will tend to monitor management's manipulation behavior, which could prevent the earnings manipulation.

However, Wang Bing (2007) focuses on the relationship between board independence and earnings management and he/she finds that there is on relationship between independence of the board and earnings management. Wang Jianxin (2007) point out that the possibility of earnings management will increase if the Chairman and the CEO is the same person.

2.2 Equity Offering and Earnings Management

In this section,this study briefly review literature about the relationship between equity offering and earnings management from the following perspective: 1) the

relationship between initial public offering and earnings management; 2) the relationship between public equity offering and earnings management.

2.2.1 Initial Public Offerings

Bernard, Thomas (1990) explore the relationship between stock price and firm's earnings and they find that the relationship between share price and firm's earnings is positive. Chaney, Lewis (1995) propose the same point and they argue that high stock prices give managers the incentive to increase earnings. Loughran, Ritter (1997) find that during the period of IPO, firms tend to increase the net profit through accounting method manipulation, and it helps firms to achieve a high price of IPO. However, these manipulations will cause a post-issue under-performance of IPO. Moreover, Cohen, Zarowin (2010) point out that firms tend to use both real activities and discretional accruals to increase earnings during the period of equity issues. In addition, Anthony, Bettinghaus et al. (2006)examine the relationship between issuing size and the possibility of earnings management and they find a positive relationship between issuing scale and possibility of earnings management.

2.2.2 Secondary Equity Offering

Loughran, Ritter (1995), and Spiess, Affleck-Graves (1995) use American listed firms as sample to analyze the relationship between share price and earnings management. The results show that the post-equity offering stock price is negatively related to the pre-equity offering earnings management. In addition, they also find that post-equity offering firm performance is negatively related to pre-equity offering earnings management. In other words, after secondary equity offering, both share price and

performance will decrease if firms manipulate their earnings before secondary equity offering. In following studies, Pierre (2000), Kang, Kim et al. (1999), Allen, Soucik (2000) all find the similar results in France, Japan, and Austral respectively.Cohen, Dey et al. (2008) investigate whether firms use discretional accruals or real activities to manipulate earnings during the period of equity issuing. The results show that earnings management through discretional accruals and real activities both exist. However, managers are more like to use real activities manipulation to adjust earnings. At last, Cohen, Zarowin (2010) point out that firms tend to use both real activities earnings management and accruals earnings management to increase earnings during the period of equity issues. Especially after Sarbanes-Oxley Act was introduced, the degree of real earnings management has been significantly improved.This is because the SOX significantly increases the cost of accrual earnings management.

2.3 Ownership Structure and Earnings Management

In this section,this studybriefly review literature about the relationship between ownership structure and earnings management from the following perspective: 1) the relationship between ownership concentration and earnings management; 2) the relationship between managerial shareholding and earnings management; 3) the relationship between SOE shareholding and earnings management.

2.3.1 Ownership Concentration and Largest Shareholding

Previous studies have documented the effect of ownership concentration, and ownership property on earnings management. Hindley (1970)argues that for firms with diffuse ownership structure, the management team has a larger control of firm.

Therefore, managers have more incentive to manipulate earnings to achieve their own self-interest.Dechow, Sloan et al. (1996) point out that for those firms which the earnings manipulation exist, the ownership structure is more spread/dispersed than that of other firms. Donnelly, Lynch (2002)find that firms with diffuse outside ownership have more possibility to manipulate their earnings. However, Demsetz, Lehn (1985)provide the opposite views based on their research. According to their findings, there is a positive relationship between ownership concentration and the possibility of earnings management, which indicates that a diffuse ownership structure may prevent a firm to manipulate its earnings.

In addition,Porta, Rafael La, Lopez-de-Silanes et al. (1998) find a positive relationship between the proportion of largest shareholding and earnings management,Bushman, Chen et al. (2000)andFan, Wong (2002) propose the same view and Bai Chongen, Liu Qiao et al. (2005)also draw the same conclusion based on Chinese market. However, Li, Guan (2004) find a non-liner relationship between proportion of largest shareholding and earnings management. In particularly, the degree of firm's earnings management will increase as the increase of shareholding of the largest shareholder. However, beyond certain threshold, firm's earnings management will decrease with the increase of shareholding of the largest shareholder.Lu Chuang, Liu Junyong et al. (2011)finds the opposite result. In conclusion, based on previous studies, the relationship between earnings management and the shareholdings owned by the largest shareholder is not conclusive. This might

be caused by the different samples used in their studies.

2.3.2 Managerial Shareholding

Previous studies document the effect of ownership property on earnings management, Dempsey, Hunt III et al. (1993) point out that if a firm has a low proportion of shareholding by management, and it tends to manipulate its earnings through non-recurrent item. Warfield, Wild et al. (1995)argue that managerial shareholding will reduce the cost of agent. Therefore, the possibility of earnings manipulation by management team may decrease. Moreover, Yeo, Tan et al. (2002)find a non-linear relationship between management shareholding and the quality of earnings information. Particularly, the earnings information quality increases when the proportion of management shareholding rises. However, beyond certain threshold, the quality of earnings information will decline when the proportion of managerial shareholdings keeps increasing.

2.3.3 SOE Shareholding

Regarding the relationship between earnings management and shares owned by SOE, Qian, Weingast (1994)argue that SOE may get more financial and policy supports from the government like taxation preference policy or bank loan, it may reduce the incentive of firm’s earnings management.Li Zengfu, Dong Zhiqiang et al. (2011) find that with the increase of proportion of SOE shareholding, firms tend to increase the earnings through discretional accruals and real activities. However, Li Zengfu, Dong Zhiqiang et al. (2011) find that the relationship between discretionary current accruals

and proportion of SOE shareholding is negative.

2.3.4Institutional investors‘ shareholding

The purpose of institutional investors is to hope that the market value of listed companies can fluctuate within the normal range and get high returns in the stock market with the growth of the company's performance. If institutional investors are inclined to value investment, their shareholding ratio will increase with the improvement of the company's performance. At this time, institutional investors have the motivation to manage the company's earnings. If institutional investors tend only to capture short-term spreads, they have no incentive to maintain earnings management practices.Compared with individual investors, they have more funds and more professional knowledge, so they can supervise listed companies more effectively by voting with their feet and restrict the earnings management of listed companies.

Koh(2007) proved that listed companies might increase the motivation of earnings management when institutional investors hold lower stocks. On the contrary, when institutional investors hold more shares, listed companies will weaken the motivation of earnings management. DeFond(1991) confirmed that when the shareholding ratio of institutional investors approached 5% or so, the earnings management of the company will reduce. Che (2010) found that investment institutions would supervise listed companies only when the profit pressure was low.

In the study of the Chinese market, the supervisory role of institutional investors is not as significant as that of western markets. For those listed companies with majority shareholders, like especially state-owned companies, institutional investors are not active in improving corporate performance. Zengfu Li(2013) found that institutional investors inhibited earnings management of non-state-owned enterprises more obviously. Moreover, institutional investors have different motivations for supervising

corporate earnings management due to their different nature (Yuan, 2014). Investment funds, securities, insurance and other investors have a more obvious constraint on earnings management because they place more emphasis on the value of the company.

2.4 Tax and Earnings Management

Guenther (1994) examines the effect of tax rate on firm's earnings management. In 1986, America promulgated the tax law reform regulation (TRA), which declines the corporate income tax rate from 46 percent to 34 percent. As the result of this tax rate change, Guenther (1994)argues that the change of corporate income tax rate will lead firms to manipulate their earnings. Guenther (1994) find that if the corporate income rate expected to decrease, the company tend to delay its earnings from this accounting year to the next accounting year. Therefore, its tax-free may be smaller because the tax-free is calculate by a lower corporate income tax rate.

Wang Yuetang, Wang Liangliang et al. (2009) use the sample of listed companies in China and explore the relationship between corporate income tax rate and earnings management. In 2007, China promulgated a new corporate income tax law, the Firms Income Tax Law of the People's Republic of China, and this law was implemented on January 1, 2008. Wang Yuetang, Wang Liangliang et al. (2009) find that there is a positive relationship between the corporate income tax rate and firms' earnings management when the corporate income tax rate declines for some companies.

However, different from the results of David's research, Wang Yuetang, Wang Liangliang et al. (2009) find that there is no significant relationship between the corporate income tax rate and firms' earnings management when the corporate income tax rate rises for some companies. The reason provided by Wang Yuetang, Wang Liangliang et al. (2009) is that the magnitude of corporate income tax rate increase for some companies might not large enough for firms to manipulate their earnings.

Following this research, Li Zengfu, Dong Zhiqiang et al. (2011) investigate whether firms use real activities to manipulate earnings rather than use accounting method to manipulate. Li Zengfu, Dong Zhiqiang et al. (2011) find that when the corporate income tax rate increase, the relationship between corporate income tax rate and real activities manipulate is positive and significant as well, which means firms tend to use real activities manipulate rather than to use accounting method to manipulate.

In addition, Lin, Lu et al. (2012) test the effect of governance characteristics, and the proportion of shares owned by state-owned enterprises (SOE) on firms' earnings management accounting methods when the corporate income tax rate changes. They find that when the corporate income tax rate change, the incentive of accounting method tends to be less for those firms with a high proportion of shares held by SOE. Moreover, better governance characteristics also tend to limit the incentive of earnings management accounting `methods when the corporate income tax rate changes. However, Lin, Lu et al. (2012) did not study the effect of other ownership structure and firm's characteristics on firm's earnings management accounting

methods, and the effect of those factors on firm's real activities manipulate.

2.5 Directors' Background and earnings management

Executives with "CPA Work Background" may have supervisory governance effects on earnings management. Executives with "CPA Work Background" have received systematic and professional training in the accounting firm. They have experience in handling complex accounting business and transactions, auditing clients from different industries and firms, and that giving them the industry expertise (Beasley, Carcello et al. 2000, Imhoff Jr 1978)

DeFond, Francis (2005) found that when a professional accounting financial expert entered the audit committee, the market response was significantly positive. However, when a financial expert without accounting experience entered the audit committee, the market response was not significant. This result indicating that professional accounting knowledge and skills of executives could enhance the quality of financial reporting and corporate governance, and increased the value of shareholders.

The study byXie, Davidson III et al. (2003)also found that the company has lower current discretionary accruals when audit committee members included experts with financial skills. Therefore, hiring executives with "CPA work background" can benefit the company such as limit earnings management and improve the quality of financial reporting.

As accrued earnings management, real earnings management is also an important means of exaggerating reported earnings (Roychowdhury 2006, Cohen, Dey et al. 2008, Gunny 2010, Zang 2012), and external monitoring of high-quality audit report can be reduced the company's accruals and real earnings management simultaneously. Chen Songsheng, Dong Jinsheng et al. (2012). Therefore, executives with a CPA working background can limit the company's accruals and real earnings management.

In the study ofZhao Wenping, Zhang Yinan et al. (2015), the financial work experience of senior managers can significantly inhibit the real earnings management. The higher the proportion of executives with financial work experience in the management team, the lower the real earnings management level of the company will be. However, the influence of financial education background on earnings management is not significant.

However, there is no significant evidence that the experience and skills of CPA executives significantly oversee and limit the company's earnings management behaviour Jihong, Lizhu (2014). Their study has found that “office associations” (the executive with a CPA working background was/is working in the accounting firm which issue the audit report) give executives the ability to perform additional accrued earnings management, that allows auditors to accept higher levels of accrued earnings management and made the company's audit supervision more lenient. That let the company has not turned to higher-cost real earnings management and has a lower level of real earnings management. This shows that in China's listed companies, the

executive with work skills and experience of CPA has not benefited the company. Not only did they not play their due role in the management of earnings, but they “helped to abuse”, which made the company have higher levels of accruals earnings management (Jihong, Lizhu 2014).

Firms’ managers have sufficient motivation to conduct earnings management to meet the requirements of creditors on relevant financial indicators(Liu yixuan 2016). Senior managers with banking background have a good external relationship network, and a clearer understanding of the debt decision-making and approval process can increase enterprises' access to key information and resources, which may help them implement earnings management to obtain more credit financing.

Research on the literature of independent directors' restraining earnings management shows that the financial background will affect the supervision effect of independent directors, and independent directors with financial background have a greater supervision effect on earnings management. Xie, Davidson III et al.'s(2003) study showed that independent directors with financial background have a better understanding of the means of earnings management, which can significantly inhibit the degree of accrued earnings management.

Wang Bing (2007) studied Chinese listed companies from 2002 to 2004 and found that independent directors did not improve earnings quality, but independent directors with financial background could significantly improve earnings quality.

Hu Luanming, Tang Songlian (2008) examined the relationship between independent directors and earnings information quality of listed companies in China from 2002 to 2006, and found that when with a high proportion of independent directors with financial background in the board of directors, the quality of accrued earnings information of companies was better.

2.6 Summary

An external audit can effectively inhibit the accrual earnings management of companies. However, when the external audit is too strict, companies will turn to more covert real earnings management, even if the cost is increased.

Moreover, the supervisory role of the board of directors is equally important, especially for independent directors. Since there is no directly related interest with the company, the independent director can better exercise the supervision function.

In terms of ownership, due to less pressure from external supervision, the degree of earnings management of state-owned enterprises is relatively high. Furthermore, for both shareholders and management, a higher shareholding ratio will bring higher earnings management. Because the higher the shareholding ratio is, the higher the motivation to obtain excess returns through earnings management will be. Finally, institutional investors hold enough money and can choose to vote with their feet, thus exerting a restrictive effect on earnings management.

When companies issue additional shares in the market, whether IPO or SEO, companies want to attract investors as much as possible. Therefore, earnings management is particularly common during the issuance period of shares, and accrual earnings management and real earnings management exist at the same time.

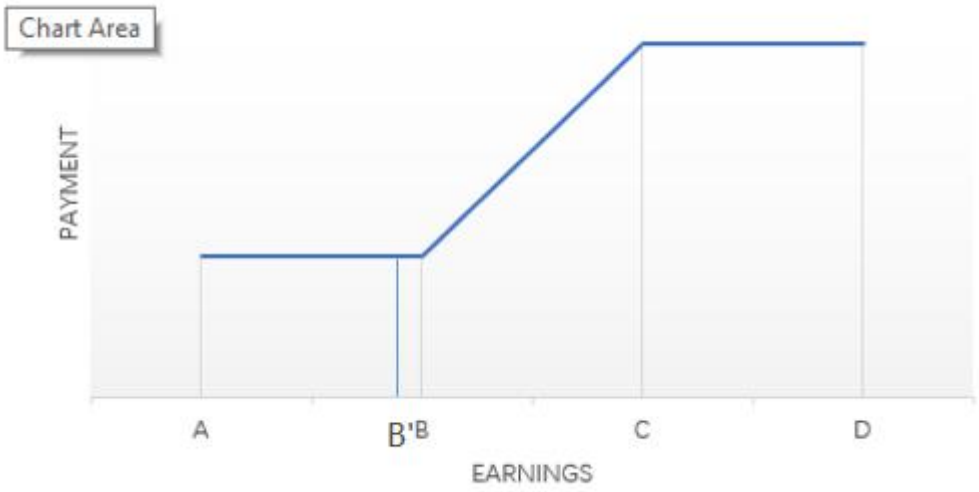
The impact of taxation on earnings management is also obvious. When the tax rate

changes, the company will take the initiative to adjust the earnings to the annual recognition with a low tax rate.

Chapter 3:Earnings management detect model review

3.1 Healy Model

Healy (1984) research focused on the managements' incentives on earnings management and the setting of his study is when the marginal bonus is "out of money". In his research, the manager's compensation package included a base salary and a piecewise bonus as the chart.



The manager's payment is based on the company's earnings. Healy has divided the manager's compensation is three zones: 1) the zones left of B', 2) the zones between B' and C, 3) the zones right of C. Suppose if the real earnings fall in area of the left of B' or the right of C, the manager will have no incentive to do any earnings management as he couldn't get a higher compensation. However, if the real earnings

fall in the zone between B' and C, thus the manager tends to increase the report earnings to increase his current bonus.

Therefore, Healy defiend discretionary accruals as follows:

DA = ΔWORK -DEP-X2D1 -(TP +D1) *D2

where

DA = discretionary accruals, which are equated with total accruals;

Δ WORK = the change in select accruals from working capital: the increase in accounts receivable (ΔAR) plus the increase in inventory (ΔINV) plus the decrease in accounts payable (ΔAP);

DEP= depreciation;

X2 = extraordinary items;

D1 = dummy variable; D1=1 (0) if bonus plan earnings are defined after (before) extraordinary items;

ΔTP = the change in income tax payable;

D2 = dummy variable; D2=1 (0) if bonus plan earnings are defined after (before) income tax.

In Healy's model, he uses the change in select accruals from working capital as the total accruals. After that, he removes the depreciation from the total accruals because the depreciation is non-discretionary accruals. Moreover, if the CEO's bonus plan earnings are defined before the extraordinary items, thus there is on impact of the

extraordinary items on CEO's payment. Therefore, D1 is defined 0 if the bound plan earnings are defined before extraordinary items. As the same reason, the D2 is defined 0 if the bound plan earnings are defined before the income tax payment.

The contribution to earnings management research of Healy is he has mentioned that the total accruals include the discretionary accruals and non-discretionary accruals. The interpretation of his study is that the NDA is not 0, and the TA = NDA +DA. The positive DA in the real earnings subset between B' and C.

According to Healy's defines non-discretionary accruals as the deflated long-run accruals as follows:

$$\boldsymbol{NDA_{t+1} = \sum \frac{TA}{A} / n} \qquad \textbf{(1)}$$

Where

TA_t:is the total accruals of year t;

NDA_{t+1}:is the none-discretionary accruals of year t+1.

A_{t-1}: is the lagged assets.

In most applications, the average is calculated over 5 years.

3.2 Deangelo Model

(DeAngelo 1986) study is focused on the transaction price. As the price setting is related to the firm's value which tends to increase after the buyout. Therefore, the management has the incentive to downward the earnings to reduce the price before the buyout. DeAngelo (1986) predicts that the non-discretionary accruals following a

random walk. The DeAngelo model uses the total accruals of previous as the non-discretionary accruals, and uses the difference of total accruals between current year t and previous year to measure the earning quality DeAngelo (1986). The assumption of this model is: the firm's non-discretionary accruals of current year t are equal to the firm's total accruals of the previous year. However, the DeAngelo model cannot control the impact of the change of the state of operation to none-discretionary accruals.

$$NDA_t = /A_{t-1} \quad (2)$$

This characterization fits a constant growth mean reverting or random-walk processes. The expected accruals this year is equal to those of last year, and thus all changes in accruals are discretionary.

3.3 Jones Model

Jones (1991) points out that there is a common feature of Healy model and DeAngelo model that both ignore the influence of firm's size on non-discretionary accruals. As the change of firm's size, the accrued profit subjects will change such as receivables, payables and accumulative depreciation. For example, the change of operating revenue will lead to the change of accrued profits, and the fixed assets tend to decrease the accrued profits as the depreciation. Therefore, the none-discretionary accruals are related with the firm's operation revenue and fixed assets (Jones 1991).

If the operating revenue and the fixed asset are stable, the accrued profits will remain stable. Therefore:

$$\mathbf{NDA_t = \beta_1 + \beta_2 REV_t + \beta_3 PPE_t} \quad \mathbf{(3)}$$

Where is: NDA_t is the non-discretionary accruals of year t.

If the operating revenue and the fixed asset are changed, the accrued profits will change;

$$\mathbf{NDA_t = \beta_1 + \beta_2 \Delta REV_t + \beta_3 \Delta PPE_t} \quad \mathbf{(4)}$$

Where is: NDA_t is the non-discretionary accruals of year t, ΔREV_t is the change of revenue between year t and year t-1, ΔPPE_t is the change of original value of fixed assets between year t and year t-1.

Items which related to the operating revenue are receivables, inventory, and accounts payable, etc. If these items didn't change, the non-discretionary accruals which related to the operating revenue are 0 (Jones 1991). Therefore, the non-discretionary accrual is related to the change in operating revenue. However, items which related to the fixed asset is depreciation. The depreciation exists in every accounting year, even the fixed assets don't change. Thus, the non-discretionary accruals are related to fixed assets rather than the change of fixed assets (Jones 1991).

Therefore:

$$\mathbf{NDA_t = \beta_1 + \beta_2 \Delta REV_t + \beta_3 PPE_t (5)}$$

Where is: NDA_t is the non-discretionary accruals of year t, ΔREV_t is the change of revenue between year t and year t-1, PPE_t is the original value of fixed assets between year t and year t-1.

Then, Jones model using the change of operation revenue and the original value of fixed assets as independent variables to build a model as following to measure the discretionary accruals:

$$\mathbf{TA_t = NI_t - CFO_t} \quad \mathbf{(6)}$$

$$\frac{\mathbf{NDA_t}}{\mathbf{A_{t-1}}} = \mathbf{\beta_1} \frac{\mathbf{1}}{\mathbf{A_{t-1}}} + \mathbf{\beta_2} \frac{\mathbf{\Delta REV_t}}{\mathbf{A_{t-1}}} + \mathbf{\beta_3} \frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} \quad \mathbf{(7)}$$

$$\frac{\mathbf{DA_t}}{\mathbf{A_{t-1}}} = \frac{\mathbf{TA_t}}{\mathbf{A_{t-1}}} - \frac{\mathbf{NDA_t}}{\mathbf{A_{t-1}}} \quad \mathbf{(8)}$$

Therefore, the coefficient β_1, β_2 and β_3 are regressed by the:

$$\frac{\mathbf{TA_t}}{\mathbf{A_{t-1}}} = \mathbf{\beta_1} \frac{\mathbf{1}}{\mathbf{A_{t-1}}} + \mathbf{\beta_2} \frac{\mathbf{\Delta REV_t}}{\mathbf{A_{t-1}}} + \mathbf{\beta_3} \frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\varepsilon_t} \quad \mathbf{(9)}$$

The regression is regressed by each year and industry, respectively.

Where is: $\mathbf{TA_t}$ is the total accruals of year t; $\mathbf{NI_t}$is the net profit of year t; $\mathbf{CFO_t}$ is the cash flow from operating of year t; $\mathbf{NDA_t}$ is the none-discretionary accruals of year t; $A_{t-1}$is the total assets of year t-1; $\mathbf{\Delta REV_t}$is the change of operation revenue between year t and year t-1; $\mathbf{PPE_t}$ is the original value of fixed assets; $\mathbf{DA_t}$is the discretionary

accruals of year t.

According to the Jones model functions, it could find that the **NDA** is the $\widehat{TA}$, and the **DA** is the residue error of the **TA**.

In previous studies, some research has found that if some variable correlated with **ΔREV +PPE** are omitted, or the linear model is misspecified, the DA value will be measured overestimated or underestimated.

The overestimated found in previous research with candidate samples like firms with extreme performance, or random samples. If the firm's accrual with extreme performance, the solution is to add a control variable for performance, like cash flows deflated by lagged assets (Dechow, Sloan et al. 1996, Kothari, Leone et al. 2005, Jeter, Shivakumar 1999). Another way is matching firms with others by industry and a performance criterion like ROA or revenue growth (Dechow, Sloan et al. 1996, Ye 2007). However, if the firm is in a random sample which is large enough, its earnings management may be offset by other firm's earnings management with different directions (Barua, Legoria et al. 2006, Jacob, Jorgensen 2007).

The uniderestimated is found in previous research by using the sample that the earnings management is known to take place. The first situation is the samples of companies which is GAAP violator (Dechow, Hutton 1995, Beneish 1997). Beneish (1997) choose a 64-firm sample, and there are 59 firms which are GAAP violators, but the Jones model just detected 15 GAAP violators. The other kind sample is the

random sample with deliberate manipulate (Dechow, Hutton 1995). In that sample, Dechow, Hutton, and Sweeney find that Jones model could only detect the abnormal accrual that the earnings management is 5% of the total asset or higher.

3.4 Improved Jones model

According to the above problem of Jones model, nowadays studies tend to focus that how to reduce both errors. Most research concern to reduce the error I as that error I is more urgent than error II, because error I will reduce the significant of the results(McNichols, Maureen F. 2000). Later researchers present various improvements to the Jones model as follows: 1) the modified Jones model (Dechow, Sloan et al. 1996); 2) the cash-flows model (Dechow, Dichev 2002); 3) the linear performance-match Jones model (Kothari, Leone et al. 2005).

3.4.1 The Modified Jones Model

Dechow, Sloan et al. (1996) point out that the Jones model did not consider the impact of receivable on accruals and it will cause the overvalue of firm's operation revenue. If the firm does not manage earnings in the previous period but manipulate the receivable in the event period. Thus, the firm's credit sales will normal in the estimation period but abnormal in the event period. Thus, they present the Modified Jones model as:

$$\frac{\mathbf{TA_t}}{\mathbf{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\mathbf{\Delta REV_t - \Delta REC_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\varepsilon_t} \qquad \textbf{(10)}$$

NDA is the $\widehat{TA}$, and the **DA** is the residue error of the **TA**.

The regression is regressed by each year and industry, respectively.

In their test, the modified Jones model is less susceptible to error II then the Jones model. Moreover, in cross-sectional analysis, the change in the accounts receivable is subtracted from the change in revenues for the estimations of parameters of normal accruals (Subramanyam 1996, DeFond, Park 1997, Dechow, Richardson et al. 2003, Kothari, Leone et al. 2005). That is, the difference between two versions of the Jones model affects both stages of the earnings management detection procedure: estimation of normal accruals and identification of the abnormal accruals. The following definitions summarize the model.

Definitions: the time-series modified Jones model following the first stage of the Jones model, but it estimates DA in the event period as following:

$$\frac{\mathbf{NDA_t}}{\mathbf{A_{t-1}}} = \boldsymbol{\beta_1} \frac{\mathbf{1}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_2} \frac{\mathbf{\Delta REV_t - \Delta REC_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_3} \frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} \qquad \textbf{(11)}$$

Where the $\mathbf{\Delta REC}$is the change of receivable.

The cross-sectional modified Jones model replace the changes in revenues with the changes in cash revenues for the estimation of both normal accruals and DA.

3.4.2The cash-flows Jones model

According to the financial analysis research advocates detecting earnings

management by comparing the patterns of accruals and cash flows (Healy, Palepu 2003), cash flow be known as a natural candidate for the performance control. To illustrate the Jones model with such a control to reduce the error I, consider (Jeter, Shivakumar 1999), who adapt the Jones model as follows:

$$\frac{\mathbf{NDA_t}}{\mathbf{A_{t-1}}} = \beta_1 \frac{1}{\mathbf{A_{t-1}}} + \beta_2 \frac{\Delta \mathbf{REV_t}}{\mathbf{A_{t-1}}} + \beta_3 \frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} + \mathbf{\Sigma} \quad *I * \frac{\mathbf{CFO_t}}{\mathbf{A_{t-1}}} \qquad \textbf{(12)}$$

NDA is the$\widehat{TA}$, and the **DA** is the residue error of the **TA**.

Where the **CFO** is the cash flows from operations, and the indicator function $\mathbf{I}_{j\text{-}2}$ which take the value of 1 if the firm's CFO places it in the j-2 quintile and 0 otherwise.

Since cash follows are defined as the difference between earnings before extraordinary items and accruals including contemporaneous cash flows as a regressor may induce a simultaneity problem, especially if the research design uses the statement of cash-flows approach to calculate accruals. Thus, until Dechow, Dichev (2002), most studies did not control for this performance measure.

3.4.3 Performance Matched Jones Model

Kothari, Leone et al. (2005) present that the limitation of Jones model and adjusted Jones model are still existing. The main limitation is both models are misspecified when applied to stratified random samples especially the sample firm with extreme financial performance or extreme forecasts of long-term earnings growth.Kothari,

Leone et al. (2005), develop the performance-matching model aims to address the non-linear relationship between normal accruals and performance.

They offer two different approaches. The first involves matching similar firms, which alleviates the need to use an OLS estimate of DA. They detect earnings management by comparing the accruals of firms that are other wise almost identical. The second, the linear-performance-matching model, embodies two modifications of the Jones and the modified Jones models: an intercept, and an additional control for the lagged rate of return on assets, ROA_{t-1}.

In order to measure discretionary accruals based on a random and stratified random sample. Based on Jones model and Modified Jones model, (Kothari, Leone et al. 2005)propose the Performance Matched Jones Model as follows:

$$\frac{\mathbf{TA_t}}{\mathbf{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\mathbf{\Delta REV_t - \Delta REC_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_4 ROA} + \boldsymbol{\varepsilon_t} \qquad \textbf{(13)}$$

NDA is the $\widehat{\boldsymbol{TA}}$, and the **DA** is the residue error of the **TA**. The regression is regressed by each year and industry, respectively.

However, the limitation of performance matched Jones model is still existing. Firstly, the ROA is a financial ratio, rather than accruals. The impact of ROA on accruals is the value of β like the year and industry, but not as the component of accruals. As it not the component of accruals, it will make the regression error of the model when it is used to measure the non-discretionary accruals. Secondly, according to the

empirical results**,** when it uses the regression to measure the β value of performance matched Jones model by each year and industry, in some year and industry, the **ROA** has been omitted because of the collinearity. Then, the performance matched Jones model will equal to the modified Jones model as the **ROA** has been omitted.

3.4.4 Lu jianqiao model

Based on the Chinese market, Lu (1999) point out that the Jones model and modified Jones model did not consider the impact of intangible assets and other long-term assets on accruals. As intangible assets and long-term asset are related to amortization, then the non-discretionary accruals are related to intangible assets and long-term assets (Accounting standards for business enterprises No. 6- Intangible Assets, Article 17,2006). According to the change of《Accounting standards for business enterprises》in 2007, the item long-term assets has been cancelled, it was dividends by Financial assets available for sale and held-to-maturity securities. Thus, before 2007, the other long-term assets are measured as long-term assets, and after 2007 the other long-term assets is measured as Financial assets available for sale + held-to-maturity securities + Long-term investment on stocks (CSMAR).

Therefore, Lu (1999) present the Lu jianqiao model as

$$\frac{\mathbf{TA_t}}{\mathbf{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\mathbf{\Delta REV_t - \Delta REC_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\mathbf{PPE_t}}{\mathbf{A_{t-1}}} + \beta_4\frac{\mathbf{IA_t}}{\mathbf{A_{t-1}}} + \boldsymbol{\varepsilon_t} \qquad \textbf{(14)}$$

Where is: the $\mathbf{IA}_t$ is the intangible assets and long-team assets in year t.

NDA is the $\widehat{TA}$, and the **DA** is the residue error of the **TA**. The regression is regressed by each year and industry, respectively.

3.4.5 Real earnings management

Roychowdhury (2006) points out that enterprises manage the real earnings through three area: manipulate sales (increase the sales discount, ease the restrictions on the conditions of sale or creditor terms); manipulate production (increase output to decline the unit product cost); manipulate discretionary expenditure (research and development expenditure, advertising expenditure and maintenance costs). Those three manipulations can be measured by net abnormal operating activities cash flow, abnormal product cost and abnormal discretionary expenditure.

The calculation of normal part:

Based on the research ofDechow, Hutton (1995), the cash flow of operating (CFO) can be calculated as:

$$\frac{CFO_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \beta_1 \frac{SALES_t}{TA_{t-1}} + \beta_2 \frac{\Delta SALES_t}{TA_{t-1}} + \varepsilon_t \quad (15)$$

Where CFO_t is the cash flow of operating in t year; $SALES_t$ is the sales in t year; $\Delta SALES_t$ is the change of sales in t year.

The cost production is equal to the cost of goods sold plus the change of inventory, and the cost of goods sold is:

$$\frac{COGS_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \beta_1 \frac{SALES_t}{TA_{t-1}} + \varepsilon_t \quad \textbf{(16)}$$

The change of inventory is:

$$\frac{\Delta INV_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \beta_1 \frac{\Delta SALES_t}{TA_{t-1}} + \beta_2 \frac{\Delta SALES_{t-1}}{TA_{t-1}} + \varepsilon_t \quad \textbf{(17)}$$

Therefore, the cost of production is:

$$\frac{PROD_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \beta_1 \frac{SALES_t}{TA_{t-1}} + \beta_2 \frac{\Delta SALES_t}{TA_{t-1}} + \beta_3 \frac{\Delta SALES_{t-1}}{TA_{t-1}} + \varepsilon_t \quad \textbf{(18)}$$

Where the $COGS_t$ is the cost production in t year; ΔINV_t is the change of inventory in t year; $PROD_t$ is the cost of production in t year.

Moreover, the discretionary expenditure is:

$$\frac{DISEXP_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \beta_1 \frac{SALES_{t-1}}{TA_{t-1}} + \varepsilon_t \quad \textbf{(19)}$$

Where $DISEXP_t$ is the discretionary expenditure in t year.

The calculation of abnormal part:

Based on these above formulas, it can get the fitted value through OLS. The abnormal part of can be calculated as:

$$EM\_CFO_t = \frac{CFO_t}{TA_{t-1}} - \frac{\widehat{CFO_t}}{TA_{t-1}} \quad \textbf{(20)}$$

Where the EM_CFO_t is the abnormal cash flow of operating in t year; the $\widehat{CFO_t}$ is

the fitted value of cash flow of operating in t year. Then the abnormal cost of production (EM_PROD_t) and the abnormal discretionary expenditure (EM_DISEXP_t) in the same way.

Chapter 4: How to Measure Earnings Management for Chinese Listed Firms

Abstract

Previous research about earnings management uses the Jones model and various Jones-based model (like modified Jones model, performance-adjusted model) to measure company's earnings management. These models were developed based on the Western accounting principles, which is different from the Chinese accounting standards. There is some measurement error when using these models to measure the company's earnings management in the Chinese market. In this study,this study develop a new model based on the Chinese new accounting standards which was issued in 2007. The results indicate that the new model developed is better than previous models used in literature.

4.1 Instruction

According to the 《Accounting Standard for Business Enterprises》(2006), firms should make accounting confirmation, measurement and report on the accrual basis (Accounting Standard for Business Enterprises: Basic Standard, Article 9.2006). Based on the accrual basis, for the current income, whether received or not, should be confirmed as the current income. Thus, the firm’s income can be divided into two parts: The first part is cash receipts have been made, and this part of income is confirmed as revenue. The other part is the income which not be realized by the cash inflow, and this part of income is confirmed as receivables. This part of income is

defined as the total accrual profit (Dechow, Sloan et al. 1995).

As the revenue is actually happening in the firm's business activities and cash receipts have been made, so it is difficult to manipulate (Jones 1991). Therefore, previous studies assumed that firms could only manipulation the accrued profit (McNichols, Maureen, Wilson 1988). However, not all the accrued profits could be manipulated. For example, like the depreciation of fixed assets, if the fixed assets are determined, the depreciation will be determined and cannot be changed (Accounting Standards for Business Enterprises No. 4 – Fixed Assets, Article 17,2006). Like the depreciation of the fixed asset, some of the accrual profits is enforced by the accounting standard and cannot be manipulated and this part of accrued profits has been defined as non-discretionary accrual. On the other hand, like the receivables and payables, these items could be manipulated by confirming in advance or defer, and this part of accrual profits has been defined as discretionary accrued. Therefore, the total accruals could be divided by non-discretionary accrual and discretionary accrual.

According to the above assumes:

$$\mathbf{TA_t = NI_t - CFO_t} \qquad \mathbf{(21)}$$

$$\mathbf{DA_t = TA_t - NDA_t} \qquad \mathbf{(22)}$$

Where is: $\mathbf{TA_t}$ is the total accruals of year t; $\mathbf{NI_t}$is the net profit of year t; $\mathbf{CFO_t}$ is the cash flow from operating of year t; $\mathbf{DA_t}$is the discretionary accruals of year t; $\mathbf{NDA_t}$is the none-discretionary accruals of year t.

The measurement of NDA, from Healy model to various Jones models, has been improved step by step, and each model has been modified based on the shortcomings of the former:

Compare different earnings management measurement models		
Healy model	$NDA_t = \sum \frac{TA_{t-1}}{A}/n$	Healy model use the average of the total accruals as the non-discretionary accruals
Deangelo model	$\frac{\boldsymbol{NDA_t}}{\boldsymbol{A_{t-1}}} = \frac{\boldsymbol{TA_{t-1}}}{\boldsymbol{A_{t-i}}}$	Deangelo model use the last year's total accruals as the non-discretionary accruals
Jones model	$\frac{\boldsymbol{NDA_t}}{\boldsymbol{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\boldsymbol{\Delta REV_t}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\boldsymbol{PPE}}{\boldsymbol{A_{t-1}}}$	Compare Healy and Deangelo models, Jones model consider about the growth of the company.
modified Jones model	$\frac{\boldsymbol{NDA_t}}{\boldsymbol{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\boldsymbol{\Delta REV_t - \Delta REC_t}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\boldsymbol{PPE}}{\boldsymbol{A_{t-1}}}$	Based on the Jones model, the modified Jones model consider about the impact of receivable on company's earnings management
Performance matched Jones model	$\frac{\boldsymbol{NDA_t}}{\boldsymbol{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\boldsymbol{\Delta REV_t - \Delta REC_t}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\boldsymbol{PPE}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_4}\frac{\boldsymbol{ROA_t}}{\boldsymbol{A_{t-1}}}$	Based on the modified Jones model, the performance matched model consider about the impact of the company's size on the earnings management.
Lu jianqiao model	$\frac{\boldsymbol{NDA_t}}{\boldsymbol{A_{t-1}}} = \boldsymbol{\beta_1}\frac{\mathbf{1}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_2}\frac{\boldsymbol{\Delta REV_t - \Delta REC_t}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_3}\frac{\boldsymbol{PPE}}{\boldsymbol{A_{t-1}}} + \boldsymbol{\beta_4}\frac{\boldsymbol{IA_t}}{\boldsymbol{A_{t-1}}}$	Based on the modified Jones model, the Lu Jianqiao model consider about the impact of the long-term assets and intangible assets on company's

		earnings management.

4.2 The impact of new accounting standards on earnings management

4.2.1 Reduce the space of earnings management

4.2.1.1 Inventory (Accounting Standards for Business Enterprises No.1 - Inventories,2006)

According to the old accounting standards, the valuation for inventory issue includes specific identification, average cost, first-in-first-out method (FIFO) and last-in-first-out method (LIFO). Firms could choose one of these methods according to their needs. According to a different valuation method, the sales cost is different, and there is an impact on earnings.

The so-called last-in-first-out method refers to the cost accounting of firms, and the reference is the recent purchase of raw materials prices. The first-in-first-out rule refers to the price of the first raw materials purchased. When the purchase inventory price changed during the period, different algorithms will have an impact on the accounting profit. When the inventory price presents a downward trend, the adoption of the last-in-first-out method will increase the accounting profit, and adopting the first-in-first-out method will reduce the accounting profit. When the inventory prices rise, the last-in-first-out method will reduce the accounting profit, and when using the first-in-first-out method will increase the accounting profit. According to the new accounting standard, <Accounting Standards for Business Enterprises No.1 - Inventories >(2006)criterion using the first-in-first-out method, canceled the last-in-first-out method. The actual cost measurement of issued inventory is limited to

the advanced first-out method, weighted average method and individual valuation method, which limits the earnings management of enterprises to a certain extent.

4.2.1.2 Impairment of assets (Accounting Standard for Business Enterprises No. 8 - Impairment of Assets,2006)

According to the <Accounting Standard for Business Enterprises No. 8 - Impairment of Assets>(2006), that the provision for impairment of assets accrued cannot be turned back during subsequent accounting periods, allowing only accounting treatment at the disposal of assets. It limits listed firms use the provisions and turns back of impairment of assets to adjust earnings. This rule solves the listed firms use impairment provision and turn back to manipulate earnings problem.

The provision of asset impairment and turn back used to be a convenient means of earnings management for listed firms. According to the old accounting standard, if there are signs that factors of the previous for the impairment of assets are change, which makes the recoverable amount of assets is higher than its book value, the provision for impairment assets should have been turned back. Therefore, some listed firms usually make a significant amount of asset impairment provision in a particular year, causing a significant loss in that year, and then turn it back in the next year to manipulate earnings. New asset impairment accounting standards will effectively curb the use of impairment provisions to manipulate earnings.

4.2.1.3 Business Combinations (Accounting Standards for Enterprises No. 20 - Business Combinations,2006)

Some listed firms are used to manipulate their earnings by compiling consolidated financial statements. According to the <Provisional Regulation of Consolidated Statement>(2006)which issued by The Ministry of Treasury in 1995, any invested entity that can be controlled by the parent firm belongs to its scope of the merger. Firms can achieve the purpose of earnings management by reducing or increasing the investment proportion of subsidiaries with different operating conditions.

The basic merger theory based on the <Accounting Standards for Enterprises No. 20 - Business Combinations >(2006) has changed from the parent company theory to the entity theory. The parent company will need to incorporate all the subsidiaries it can control, rather than using the investment ratio as the sole measure. This change makes some firms by reducing or raising the operating conditions of different subsidiary investment ratio to achieve the purpose of earnings management become null and void. The merger of firms under different control is a voluntary transaction between both parties, measured according to fair value, to avoid the occurrence of earnings management by firms using the merger of firms under the same control. Although this regulation cannot eliminate earnings management, it is beneficial to standardize earnings management behavior and improve the credibility of corporate profits.

4.2.1.4 Disclosure of Affiliated Parties (Accounting Standards for Enterprises No. 36 - Disclosure of Affiliated Parties,2006)

According to the <Accounting Standards for Enterprises No. 36 - Disclosure of Affiliated Parties>(2006) new accounting standards on the definition of a related party that the firm has the control, joint control or significant impact on the three types of firms affiliated parties. Moreover, points out that whether the affiliated party transactions occur or not, as long as there is a relationship between control and related firms should be in the notes to disclose on the relationship between the mother and child company. Also, it should uncover the relationship between the level to specific to the parent company, final control, the minimum of the financial statements of the public to provide an intermediate holding company. At the same time, the new standard also canceled the choice of the ways of disclosure of the related-party transactions amount or ratio, and disclose the trading amount of the firm, such as significant trading shall disclose the trading amount and traded in the class as a proportion of the total turnover, then such as the project is required to disclose detailed information and not settlement amount.

The proceeds from the explicitly illegal related transactions shall be recognized as capital reserves and recorded in the accounts, and cannot be included in the current profits and losses. To get rid of the restriction of this standard, the listed company interrelated substantively related transactions. Alternatively, before the relevant transaction, the related party terminates its related relations in name by selling the relevant equity or suspending the transferee's relevant equity. To this, the current

accounting standards to a specific extension, the extension of the affiliated party in standards, the principal individual investors, key management personnel directly or indirectly control, shared control, significant other firms, which belongs to the related parties. Therefore, it can be seen that enterprises cannot reduce the space for earnings management by de-linking related transactions.

4.2.2 Expand the space of earnings management

4.2.2.1 Fair value

The new standard system introduces fair value as a measurement attribute. Fair value means that assets and liabilities are carried at the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. However, if there is no active market, the fair value will lose the recognition standard and be difficult to confirm. Companies may use fair value as a tool to manipulate earnings. Moreover, the new accounting standards introduce fair value into most regulations, which further expands the space for companies to manipulate earnings. For example, if the firm bought a property in 2015 for 10 million yuan. As property prices have risen in recent years, the property is worth as much as 15 million yuan. According to the old standard, if the firm replaces the property with others, it would still be worth 10 million yuan as the book value. However, using the fair value of the new standard would yield a profit of 5 million yuan.

4.2.2.2 Debt Restructuring (Accounting Standards for Enterprises No. 12 - Debt Restructuring,2006)

There are three significant changes in the debt restructuring of the new standard. Firstly, the benefits of a debt restructuring range from "capital reserves" to "non-operating income", and this increased profit should only disclose in the notes, but not need to deducted when calculating the earnings per share index. Secondly, when firms repay the debt by a non-cash asset, it needs to confirm that debt restructuring gains and confirm the transfer of non-cash assets gains and losses, and the profit or loss of transfer of assets should recognize as profit and loss of sale. At last, in the old standard, when debt restructuring is carried out on the condition that other debts are modified, future receivables or payables shall be determined in the past by future profits as set out in the agreement. However, as the new standard, it is based on the fair value of future cash flows.

According to the <Accounting Standards for Enterprises No. 12 - Debt Restructuring>(2006), debt restructuring gains due to concessions by creditors could record in current profits and losses (revised from capital reserves by old standard). Therefore, listed companies can use the debt restructuring criteria to conduct earnings management through debt exemption from related parties and obtain huge profits.

4.2.2.3 Intangible Assets (Accounting Standard for Business Enterprises No. 6 - Intangible Assets,2006)

According to <Accounting Standard for Business Enterprises No. 6 - Intangible

Assets >(2006), the research and development of intangible assets of the enterprise have been divided into two stages, and the standard allows the capitalization of development expenditures, the development expenditure will be included in intangible assets for periodic amortization. Compared with the old standard which includes the development expenditure to the total management costs, it reduces the impact on current profits.

However, it expands the space of earnings management for firms. As the complicated and risky of the intangible assets research and development, it will be difficult to divide the two stages of research and development. Therefore, the cut-off point of the expense and capitalization of research and development expenditure depends on how to divide the research stage and development stage, and firms could use this to achieve the purpose of manipulating profits and conducting earnings management.

Moreover, the amortization of intangible assets by enterprise accounting standards is no longer limited to the straight-line method, and the amortization period is no longer fixed. Therefore, firms could manipulate their earnings by adjusting the intangible assets amortize fixed number of year or method, to manipulate the firm's profits.

4.2.2.4 Borrowing Costs (Accounting Standards for Enterprises No. 17 - Borrowing Costs,2006)

<Accounting Standards for Enterprises No. 17 - Borrowing Costs > expand the scope of assets capitalization of borrowing costs. Including the fixed assets, investment real estate and an inventory which need after a long time to reach the state for use or sale.

For example, ships and aircraft are building for a very long time. Thus the related borrowing costs are allowed to capitalize. On the other hand, the new standard has expanded the scope for capitalized borrowing costs. Loans which can be capitalized are no longer limited to special loans, but also include general loans for the production of "capitalized assets".

These two regulations may lead to firms to expand the scope of interest capitalization to achieve the purpose of increasing the earnings. Firms could use a specific way to make the borrowing costs of general loans meet the requirements of "capitalized assets" to achieve the purpose of increasing the earnings.

4.3Comparison between the New Chinese accounting standard and International Accounting Standard

4.3.1 The comparison of conceptual frameworks

International accounting standards and most developed countries have a conceptual framework as a reference to guide the development of accounting standards.

The basic standards of Chinese accounting share some similarities with the conceptual framework of financial accounting of the International Financial Reporting Standards Board and the United States, including the basic concepts and principles of accounting assumptions, objectives, the definition of elements, recognition and measurement, etc.

However, there are also differences, and the main ones are listed below.

	IAS	New Chinese accounting standard
Name	Framework for the Preparation of Financial Statements	Accounting Standard for Business Enterprises No. 1- Basic Accounting Standard
Legal status	Does not belong to the accounting standard component, has no legal effect	It is a part of the accounting standard, belongs to the department regulation category, is a legal norm
Purpose	Is the basis for the presentation of financial statements prepared by external users	To standardize the formulation of specific accounting standards, there are no specific accounting standards to standardize the accounting treatment of transactions or events
structure	It is divided into nine parts: preface, introduction, objective of financial statement, basic assumption, quality characteristics of financial statement, elements of financial statement, recognition of elements of financial statement, measurement of elements of financial statement, concept of capital and capital preservation	It is divided into general provisions, accounting information quality requirements, assets, liabilities, owners' equity, income, expenses, profits, financial reports, and supplementary provisions in ten chapters.
Objectives of financial statements	The financial statements also reflect the fiduciary responsibility of the resources entrusted to it by management or the implementation of the economic responsibility.	The objectives of financial statements are not mentioned in the basic standards and are explained in the corresponding specific accounting standards for financial statements. The “accounting information quality Requirements" clearly indicate that enterprise accounting should truthfully provide useful information about the financial status, operating performance, cash flow and other aspects of the enterprise to meet the information needs of all aspects. It helps users to make economic decisions and supervise the performance of management's fiduciary duties.
The basic assumptions	The accrual basis and the going concern assumptions are discussed and no other accounting assumptions are involved.	accounting subject, accounting period. Monetary measurement and going concern assumptions.
Elements of financial	Assets, liabilities, equity, income and expenses are defined separately	Assets, liabilities, owner's equity, income, expenses and profits.

statements		
Recognition of financial statement elements	Recognition refers to the process in which items are included in the asset statement and income statement to meet the criteria of element definition and recognition. The confirmation of five accounting elements is discussed in detail.	It is basically the same as the conceptual framework of international accounting standards
Measurement of elements of financial statements	The process of determining the monetary amount for the purpose of identifying and presenting the elements of the financial statements in the balance sheet and income statement. Four measurement bases of historical cost, current cost, realizable value and present value are discussed.	All assets and liabilities of an enterprise shall be measured at their actual cost when they are acquired. Except for the replacement cost permitted by laws, administrative regulations and accounting standards, enterprises shall not adjust their book value by themselves except for the measurement of net realizable value and fair value.

4.3.2 Differences in the content of the accounting standards

Differences in the content of the accounting standards		
	IAS	New Chinese accounting standard
Accounting factor classification difference	International accounting standards classify gains and incomes as income and losses and expenses as expenses. Income and expense factors are related to measurement of business performance. The difference between revenue and expenses is profit and there is no separate profit item.	Chinese accounting standard does not have income element, charge is narrow category, much profit element. Assets include fixed assets, current assets, intangible assets, long-term assets and other assets. Liabilities are divided into long-term liabilities and current liabilities. Owners' equity includes surplus reserve, invested capital, undistributed profit and capital reserve, etc. Profit, expense and income are dynamic factors.
Inventory	International accounting standards take the minimum of net realizable value and cost as the initial measurement of inventory. On the purchase cost, the international general "net price method",	Use the continuous historical cost method. Use the lump-sum method for purchasing costs.
Fixed assets	1. International accounting standards take the working measure method, the	1.Also includes the sum of years method.

	decreasing balance method and the straight line method as the fixed assets depreciation method. 2. The fixed assets shall be priced at the end of the period based on revaluation and accumulated depreciation. 3. Conditionally capitalization the repair costs of fixed assets.	2. Exclude revaluation. 3.The fixed assets repair cost as a whole income.
Ending valuation of investment	1. In IFRS, the end of the period for short-term investments is marked by the "mark-to-market method" or the "mark-to-market method" 2. For long-term investments, the ending valuation is based on a revaluation of amount or a revaluation of cost, or a lower cost/market valuation of equity securities, with book value deducted in the event of a non-temporary decline	1.The ending valuation of short and medium term investments is based on the lower market/cost model approach only 2. The ending valuation method of long-term investment shall be whichever is lower: recoverable amount or book price
Enterprise merger	Legal rights and interests. Therefore, on the purchase date, the acquirer shall confirm the liabilities and identifiable assets. The merger scope of the subsidiaries, the exemption scope of the parent company's financial statement preparation and the listing of equity are also changed.	There are no accounting standards for business combinations. The interim <Provisions on Consolidated Financial Statements> adopt the purchase method in consolidated financial statements and enterprise merger, but the reality is the joint method of equity. At the same time, based on the book value as the measurement basis, according to the appraisal value reconciliation narrative 100 percent of the equity acquisition.
Intangible assets and other assets	International accounting standards deal with R&D expenses as follows: intangible assets are not recognized in the research stage. Therefore, expenses are expensed and are referred to as gains and losses. The development phase may be considered as an intangible asset, but the expense shall be capitalized and the amortization period shall be less than 20 years. To expense start-up costs directly at start-up.	Research and development costs are expensed, legal fees, registration fees can be considered as actual costs, and less than 10 years amortization period. Collect start-up company fees into "long-term deferred expenses" until the business is expensed.
Debt	According to international accounting	In China, it is capital reserves, and

restructuring	standards, the difference between debtor's debt-servicing assets and debt restructuring book value is income and is classified as profit. In addition, international accounting standards require creditors to obtain assets that should be initially measured in accordance with fair value.	debtors cannot make profits in debt restructuring. The assets acquired by the creditor shall be initially measured at book value.
Disclosure of association relationships and transactions	International accounting standards classify as profit and income matters that are recognized in accordance with profit and revenue conditions. The exemption of related party transaction pricing and inter-enterprise transaction disclosure should be abolished.	The guidelines set limits on items that can be counted as income. In the transaction, the related debts, expenses, asset sales, transfer of receivables and abnormal commodity sales cannot be counted as income, and the collection of capital occupation fees, normal commodity sales, related transactions, and the amount that can form profit and income, etc., are also strictly limited. Transactions between state-owned enterprises are exempted.
Borrowing cost criteria	International accounting standards do not consider the use of borrowing; borrowing costs are clearly defined as expenses. Based on satisfying the capitalization conditions, borrowing costs may be capitalized and other costs expended.	Borrowing costs may be capitalized if they meet the conditions for capitalization.
Income tax	The balance sheet liability method is the application of income tax in international accounting standards, the deferred method is banned and the tax payable law is abolished.	No income tax accounting standards, but according to the relevant provisions, tax payable method is optional, tax impact accounting method may also be optional. More enterprises adopt the tax payable method.

(<Accounting Standards for Enterprises>, 2006, <International Accounting Standards>,1984)

4.4Developing the Jones model model to measure EM based on the Chinese accounting standards

4.4.1. Developing the measure of total accruals

According to the 《Accounting Standards for Enterprises No. 30 - Presentation of Financial Statements,2006》, the net income is calculated as follows:

Operating profit = operating revenue – (operating cost + business tax and surcharges + selling expenses + administration expense+ financial expense+ assets impairment loss) + (the profits and losses on the changes in fair value + the investment gains) ***(23)***

Net income = operating profit + non-business income - non-business expenditure – income tax ***(24)***

In the cash flow statement, firm's cash flow is divided into three parts: cash flow from operating, cash flow from investment and cash flow from financing (Accounting standards for enterprises No.31- Cash flow statements, Article 4,2006). The income from investing is calculated in cash flow from investment but not cash flow from operating (Accounting standards for enterprises No.31- Cash flow statements, Article 13,2006). Thus, in Jones model and modified Jones model, the income from investing has been calculated as total accruals (TA).

Moreover, as the income from investing is not belonging to the operating revenue, so they are calculated as discretionary accruals (DA). However, the income from

investment is determined by cash basis, and this part of earnings has been realized by cash inflow. According to the assumption of earnings management, the income from investing does not belong to total accruals.

Therefore. this study presents:

$$\mathbf{TA_t = NI_t - CFO_t - CFI_t} \quad \mathbf{(25)}$$

Where is: TA_t is the total accruals of year t; NT_t is the net profit of year t; CFO_t is the cash flow from operating of year t; the CFI_t is the cash flow from investing of year t.

4.4.2 Developing the measure of NDA

Like operating revenue, fixed assets, intangible assets and long-term assets, there are some items related to income from investing like the benefits of fair value change, dividend receivable and interest receivable. As stipulated in the new accounting standards, if there is a short-term investment, like the investment of real estate or share, the profit will be calculated as income from investing when the short-term investment has been sold (Accounting Standards for Enterprises No. 23 - Transfer of Financial Assets, Article 13,2006). If the firm keeps holding the short-term investment, the change of market value will be calculated as the benefits of fair value change at the end of the accounting year (Accounting Standards for Enterprises No. 23 - Transfer of Financial Assets, Article 12,2006). Which meaning, the non-discretionary accruals are related to an investment in revenue. Moreover, as a part of firm's revenue, like the operating revenue, if the firm's income from investing is stable, the

non-discretionary will remain stable. Thus, the non-discretionary accruals are related to the change of income from investing.

Therefore, this study presents the investment matched Jones model and investment matched Lu jianqiao model.

The investment matched Jones model presents as:

$$\frac{TA_t}{A_{t-1}} = \beta_1 \frac{1}{A_{t-1}} + \beta_2 \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} + \beta_3 \frac{PPE}{A_{t-1}} + \beta_4 \frac{\Delta IVE_t}{A_{t-1}} \qquad (26)$$

NDA is the$\widehat{TA}$, and the **DA** is the residue error of the **TA**. The regression is regressed by each year and industry, respectively.

Where is: $\mathbf{TA_t}$ is the total accruals of year t; $\mathbf{NT_t}$is the net profit of year t; $\mathbf{CFO_t}$is the cash flow from operating of year t; $\mathbf{CFI_t}$is the cash flow from investing of year t; $\mathbf{NDA_t}$is the none-discretionary accruals of year t; $A_{t-1}$is the total assets of year t-1; $\mathbf{\Delta REV}_t$ is the change of operation revenue between year t and year t-1;$\mathbf{\Delta REC_t}$ is the change of receivable between year t and year t-1; $\mathbf{PPE_t}$is the original value of fixed assets; $\mathbf{DA_t}$is the discretionary accruals of year t. $\mathbf{\Delta INV_t}$is the change of income from investing between year t and year t-1.

The investment matched Lu jianqiao model presents as:

$$\frac{TA_t}{A_{t-1}} = \beta_1 \frac{1}{A_{t-1}} + \beta_2 \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} + \beta_3 \frac{PPE_t}{A_{t-1}} + \beta_4 \frac{IA_t}{A_{t-1}} + \beta_5 \frac{\Delta IVE_t}{TA_{t-1}} \mathbf{27)}$$

NDA is the$\widehat{TA}$, and the **DA** is the residue error of the **TA**. The regression is regressed by each year and industry, respectively.

Where is: $\mathbf{AI_t}$is the intangible assets and other long-term assets of year t, before 2007, the other long-term assets is measured as long-term assets, and after 2007 the other long-term assets is measured as: Financial assets available for sale + held-to-maturity securities + Long-term investment on stocks.

4.4.3 Compare the now model with previous improved Jones models

According to the assumption of the Jones model, the total accruals is the amount remaining from the total profit after subtracting the revenue to be realized (cash flow). As IAS and the new accounting standards on the measurement of profits in different ways, the net income is bound to be different. The main reason is the recognition of loss and gain. Under the IAS rule, losses and gains are not included in current profits and thus they are do not affect total accruals. However, under the rules of new Chinese accounting standards, losses and gains are recorded as part of the total profits of the current period.

If the income is realized, it will be included in the cash flow from the investment (CFI). If the researcher is still used the Jones model to calculate the total accruals (TA=NI-CFO), the cash flow recorded in the CFI will not be excluded from the total accrual. In other words, under the rules of new Chinese accounting standards, the Jones model does not measure the total accruals accurately.

If the company's CFI is positive, then the Jones model measures total accruals as higher than the actual value, and if the company's CFI is negative, then the Jones model measures total accruals as lower. This is the Jones model's first weakness in the Chinese market.

Second, the investment is also not conceded when the Jones models measure NDA. Since it is not estimated, the CFI that was not excluded from total accruals in step 1 will be fully classified as DA in this step. If the CFI of the company is positive, then

the DA measured by the Jones model is higher than the actual value; if the CFI of the company is negative, then the total accruals measured by the Jones model is lower than the actual value. This is The second weakness of Jones in the Chinese market.

In view of the above two weaknesses, the newly established model eliminated CFI from the total accruals in the first step (TA= NI-CFO-CFI) and introduced the variable change of income from investment in the second step to solving the second weakness of the Jones model.

Therefore, in theory, the new model under the rules of the Chinese market is superior to the Jones model.

4.5 Model Specification

4.5.1Sample selection

This study uses all Chinese listed firms from 2001 to 2016 as the research sample and eliminates firms with missing data. The total sample is 28429 firm-years observations. All data come from firms' balance statement, income statement and cash flow statement, and all statement comes from the CSMAR database. Table1 is the summary statistics of variables used to estimate discretionary accruals.

Table 4.1: Summary Statistics of Variables Used to Estimate Discretionary Accruals

Variable	Obs	Mean	Std. Dev.	Min	Median	Max
TA_t/A_{t-1}	28463	-0.01099	0.104601	-0.35767	-0.01431	0.384791
TA'_t/A_{t-1}	28463	0.068957	0.16128	-0.35557	0.047238	0.746714
$1/A_{t-i}$	28463	0.738511	0.609932	0.029116	0.585396	3.71315
$\Delta REV_t/A_{t-1}$	28463	7.63E-10	9.13E-10	3.70E-12	4.80E-10	5.80E-09
$(\Delta REV_t-\Delta REC_t)/A_{t-1}$	28463	0.085899	0.244731	-0.48762	0.045434	1.42938
PPE_t/A_{t-1}	28463	0.289982	0.208272	0.002725	0.250477	0.955096
AI_t/A_{t-1}	28463	0.142231	0.16077	0	0.086673	0.890694
ROA_t	28463	0.051335	0.222801	-1.5	0.0269	1.08
$\Delta INV_t/A_{t-1}$	28463	0.001607	0.020661	-0.07932	0	0.110297

Where is: TA_t is the discretionary accruals of year t which measured by TA= NI-CFO; TA'_t is the discretionary accruals of year t which measured by TA= NI-CFO-CFI; A_{t-1} is the total assets of year t-1; ΔREV_t is the change of operation revenue between year t and year t-1; ΔREC_t is the change of receivable between year t and year t-1; PPE_t is the original value of fixed assets of year t. AI_t is the intangible assets and other long-term assets of year t, before 2007, the other long-term assets are measured as long-term assets, and after 2007 the other long-term assets are measured as: Financial assets available for sale + held-to-maturity securities + Long-term investment on stocks. ΔIVE_t is the change of income from investment between year t and t-1year.

In Table 4.1, both the mean and median of TA_t/A_{t-1} is negative. The mean of is -0.01099, and the median is -0.01431. It is shown that in Chinese market most firms are in a deficit state. However, when the cash flow form investment has been moved from the total accruals, the total accruals changed from negative to positive. The mean of TA'_t/A_{t-1} is 0.068957 and the median of TA'_t/A_{t-1} is 0.047238. This result proves

that the payment of investment and cash paid for the purchase and construction of fixed assets, intangible assets and other long-term assets are much larger than the income of the investment. Firms tend to use investment and purchase assets to downward their earnings.

Compare the value of fixed assets and the intangible assets and other long-term assets. The mean of AI_t/A_{t-1} is 0.142231 and the mean of PPE_t/A_{t-1} is 0.289982, the value of the mean of AI_t/A_{t-1} is about half of the value of the mean of PPE_t/A_{t-1}. For the median, the median of AI_t/A_{t-1} is 0.086673 and the median of PPE_t/A_{t-1} is 0.250477, the value of the median of AI_t/A_{t-1} is about one-third of the value of the median of PPE_t/A_{t-1}. It is shown that in Chinese market firm's intangible assets and other long-term assets is an essential component of firm's assets. Thus, it clouds expected that the Lu jianqiao model could improve the power of Jones model to detect the firm's earnings management.

4.5.2 Empirical results

4.5.2.1 Non-discretionary accruals

Table 4.2 and Table 4.3 are the non-discretionary accruals measured by different models. Table 4.2 is using the TA_t to regression betas of above models, and the Table 4.3 is using the TA'_t to regression betas of above models. These models' betas are regression by year and industry, respectively. Especially, for the performance-matched Jones model, according to the collinearity between ROA_t and $1/A_{t-1}$, in some year and industry, the beta of ROA_t is omitted. The same result also be found in other research (Wang Shengnian, Bai Jun 2009). For this reason, in some year and industry, the non-discretionary accrual measured by performance-matched Jones model is as same as modified Jones model.

In Table 4.2, it shows that the mean of non-discretionary of modified Jones model is higher than another model. The reason is modified Jones model is ignoring the amortization and depreciation of intangible assets, other long-term assets, and long-term investment. The Lu jianqiao model is considered the amortization and depreciation of intangible assets and other long-term assets. The investment-matched model considers the amortization and depreciation of long-term investment.

Comparing to Table 4.2 and Table 4.3, the non-discretionary actuals of Table 4.3 is higher than the non-discretionary accruals of Table 4.2. It shows that as the exist of cash flow form investment in total accruals, the discretionary accruals have been over-valuation.

Table 4.2: Summary Statistics of the Non-Discretionary Accruals Measured by Different Models

Variable	Obs	Mean	Std. Dev.	Variance	Min	Lower Quartile	Median	Upper Quartile	Max
Jones model	**28429**	**-0.01197**	**0.034579**	**0.001196**	**-0.10695**	**-0.03219**	**-0.0125**	**0.005916**	**0.102788**
Modified Jones model	**28429**	**0.003596**	**0.066089**	**0.004368**	**-0.2013**	**-0.03307**	**0.005878**	**0.036524**	**0.230472**
Performance-matched Jones model	**28429**	**-0.01138**	**0.073198**	**0.005358**	**-0.27621**	**-0.04545**	**-0.00476**	**0.024605**	**0.208362**
Lu Jianqiao model	**28429**	**0.002999**	**0.066904**	**0.004476**	**-0.20186**	**-0.03413**	**0.005219**	**0.036402**	**0.230684**
Investment-matched Jones model	**28429**	**0.002961**	**0.068405**	**0.004679**	**-0.21014**	**-0.0337**	**0.005526**	**0.037484**	**0.230776**
Investment-matched Lujianqiao model	**28429**	**-0.01392**	**0.039314**	**0.001546**	**-0.13249**	**-0.03558**	**-0.0134**	**0.005552**	**0.122737**

The total accruals are measured by $TA_t = NI_t - CFO_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating.

Table 4.3: Summary Statistics of the Non-Discretionary Accruals Measured by Different Models

Variable	Obs	Mean	Std. Dev.	Variance	Min	Lower Quartile	Median	Upper Quartile	Max
Jones model	**28429**	**0.06521**	**0.051479**	**0.00265**	**-0.05614**	**0.033988**	**0.059475**	**0.088522**	**0.270571**
Modified Jones model	**28429**	**0.058028**	**0.057618**	**0.00332**	**-0.07003**	**0.02249**	**0.050165**	**0.083569**	**0.303739**
performance-matched Jones model	**28429**	**0.058559**	**0.074003**	**0.005476**	**-0.2471**	**0.024295**	**0.054247**	**0.089602**	**0.330447**
Lu Jianqiao model	**28429**	**0.062644**	**0.059715**	**0.003566**	**-0.0766**	**0.027771**	**0.055467**	**0.087842**	**0.312636**
Investment-matched Jones model	**28429**	**0.058256**	**0.060914**	**0.003711**	**-0.09446**	**0.022431**	**0.051451**	**0.08542**	**0.308542**
Investment-matched Lujianqiao model	**28429**	**0.06267**	**0.062736**	**0.003936**	**-0.09705**	**0.027257**	**0.056028**	**0.088998**	**0.319337**

The total accruals are measured by $TA'_t = NI_t - CFO_t - CFI_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating, CFI_t is the cash flow from investing of year t.

4.5.2.2 Discretionary accruals

Table 4.4 and Table 4.5 are the discretionary accruals measured by different models. Table 4.4 is using the TA_t to regression betas of above models to measure the non-discretionary accruals and use $TA_t/A_{t-1} – NDA_t/A_{t-1}$ to measure the discretionary accruals, and Table 4.5 is using the TA'_t to regression betas of above models to measure the non-discretionary accruals and use $TA'_t/A_{t-1} – NDA_t/A_{t-1}$ to measure discretionary accruals.

From Table 4.4, it shows that the mean and median of discretionary accruals of modified Jones model, Lu jianqiao model and investment-matched model are negative. Which mean firms tend to downward their accruals. However, as the research of frequency division of firms' ROE, firms have an incentive to upward their earnings, especially the ROE is less than 0 and 6%. These two results contradict each other. Overall, the result of investment-matched Lu jianqiao model coincides with the result of frequency division.

In Table 4.5, this study can find that when this study removed the cash flow from investing from total accruals, the mean of discretionary accruals of all models are positive and the median of discretionary accruals are negative. The result shows that most firms tend to upward their earnings which coincide with the result of frequency division.

Table 4.4: Summary Statistics of the Discretionary Accruals Measured by Different Models

Variable	Obs	Mean	Std. Dev.	Variance	Min	Lower Quartile	Median	Upper Quartile	Max
Jones model	**28429**	**0.000699**	**0.092943**	**0.008638**	**-0.30833**	**-0.42572**	**0.000267**	**0.043846**	**0.314602**
Modified Jones model	**28429**	**-0.01443**	**0.108253**	**0.011719**	**-0.34405**	**-0.69241**	**-0.01371**	**0.039908**	**0.332726**
Performance-matched Jones model	**28429**	**0.000503**	**0.098378**	**0.009678**	**-0.28751**	**-0.05208**	**-0.00262**	**0.048379**	**0.337124**
Lu Jianqiao model	**28429**	**-0.01376**	**0.107567**	**0.011571**	**-0.34093**	**-0.06801**	**-0.01335**	**0.039873**	**0.332073**
Investment-matched Jones model	**28429**	**-0.01373**	**0.106026**	**0.011242**	**-0.33709**	**-0.06835**	**-0.01322**	**0.039414**	**0.326869**
Investment-matched Lujianqiao model	**28429**	**0.002746**	**0.089827**	**0.008069**	**-0.29146**	**-0.09494**	**0.001831**	**0.044985**	**0.301659**

Thetotal accruals are measured by $TA_t = NI_t - CFO_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating.

Table 4.5: Summary Statistics of the Discretionary Accruals Measured by Different Models

Variable	Obs	Mean	Std. Dev.	Variance	Min	Lower Quartile	Median	Upper Quartile	Max
Jones model	**28429**	**0.002572**	**0.144189**	**0.02079**	**-0.35859**	**-0.08069**	**-0.01116**	**0.069997**	**0.508467**
Modified Jones model	**28429**	**0.009767**	**0.143724**	**0.020657**	**-0.35617**	**-0.07312**	**-0.00282**	**0.079123**	**0.511835**
performance-matched Jones model	**28429**	**0.009545**	**0.133962**	**0.017946**	**-0.31458**	**-0.0708**	**-0.00557**	**0.07212**	**0.484983**
Lu Jianqiao model	**28429**	**0.004973**	**0.140604**	**0.019769**	**-0.35658**	**-0.07685**	**-0.00716**	**0.073256**	**0.487862**
Investment-matched Jones model	**28429**	**0.009622**	**0.141787**	**0.020104**	**-0.3481**	**-0.07327**	**-0.00287**	**0.078189**	**0.50284**
Investment-matched Lujianqiao model	**28429**	**0.005047**	**0.138907**	**0.019295**	**-0.34927**	**-0.07665**	**-0.00673**	**0.072404**	**0.482855**

Thetotal accruals are measured by $TA'_t = NI_t - CFO_t - CFI_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating, CFI_t is the cash flow from investing of year t.

4.6 Frequency division test

4.6.1 Expected frequency division of ROE

If X_t is true earnings of the listed company, according to the central limit theorem, in large sample cases, X_t obey normal distribution, the distribution characteristics are the closer from the mean, the higher frequency distribution; the farther away from the mean, the lower frequency distribution. If the probability density function of X_t is $F(X_t)$, the X_t is subject to N [μ, σ2], this function obeys normal distribution and has continuity in the distribution interval. Assuming that the firm has a kind of incentives to manipulate its earnings, the expected reporting earnings is X_r, and the value of manipulated earnings is X_d, then it is:

$$\mathbf{X_d = X_r - X_t} \quad \mathbf{(28)}$$

Due to the incentives of listed firms to manipulate earnings are different, some firms tend to upward their earnings and some firms tend to downward their earnings, obviously X_d distribution function $F(X_d)$ on the spatial distribution is discontinuous, finally led to the earnings after the earnings management X_r on the frequency distribution of discontinuous.

For the test of the effect of above models, this study will use the discretionary accruals to adjust firms ROE. If the measure of discretionary accruals is effective, the frequency division of adjusted ROE will be a normal distribution.

Firstly, this study will use the net income to minus discretionary accruals to get the

adjusted net income as:

Adjusted net income = net income – discretionary accruals (29)

After that, it will measure the adjusted ROE as:

Adjusted ROE = Adjusted net income / equity (30)

As the research of frequency division, Gu Zhenwei, Qin Mo et al. (2008) proved that in the Chinese market, firms with negative ROE have an incentive to upward their earnings. according to the announcement of Shanghai stock exchange and Shenzhen stock exchange in 1998, there is a “special treatment” for the listed firm which with an abnormal financial condition. For the listed firm with a deficit in two consecutive years, it's stock name will be prefixed with "ST", and if the listed firm with a deficit in three consecutive years, it's stock name will be prefixed with "*ST" and be warned with delisting. Thus, the frequency of firms with negative ROE will abnormally low and the frequency of slightly above 0 will be abnormal high.

Moreover, according to the《Measures for the Administration of the Issuance of Securities by Listed Companies》(2000), for the secondary equity offering, the average of ROE of three years must above 6% after 2001. Therefore, the firm which ROE is slightly less than 6% has an incentive to upward their earnings and the frequency of firms' ROE slightly higher than 6% will abnormally high.

At last, for the listed firm with a high return, there is an incentive to downward their earnings as the tax burden (Li Jun 2005, Zhou Zejiang 2012). Firms tend to downward

their earnings by increasing their investment as buy new assets or increasing research and development cost (Li Zengfu, Dong Zhiqiang et al. 2011). Thus, the number of firms with a high value of ROE will lower than the number of firms with low ROE.

According to above discussion, there are two peak point expected in the area above 0 and 0.06, respectively. A cross point of ROE and adjusted ROE has been expected at the right area of peak point 0, and the other cross point of ROE and adjusted ROE has been expected at the left area of pear point 0.06.

4.6.2 Frequency division test

Table 4.6: Summary Statistics of ROE and ROE adjusted by discretionary accruals of different models

Variable	Obs	Mean	Std. Dev.	Variance	Min	Lower Quartile	Median	Upper Quartile	Max
ROE	28463	0.053115	0.18443	0.034015	-1.10803	0.024561	0.065544	0.113909	0.654396
Jones model adjusted ROE	28463	-0.01388	0.244711	0.059883	-1.22677	-0.07289	0.002098	0.072316	0.826411
Modified Jones model adjusted ROE	28463	-0.04	0.286805	0.082257	-1.41364	-0.11837	-0.01817	0.068064	0.916927
performance-matched Jones model adjusted ROE	28463	-0.00584	0.24409	0.05958	-1.03749	-0.08673	-0.00267	0.084363	0.904506
Lu Jianqiao model adjusted ROE	28463	-0.03634	0.284355	0.080858	-1.36223	-0.11551	-0.01764	0.06816	0.951129
Investment-matched Jones model adjusted ROE	28463	-0.03835	0.280846	0.078875	-1.37036	-0.11713	-0.01768	0.067039	0.900461
Investment-matched Lujianqiao model adjusted ROE	28463	-0.00533	0.235996	0.055694	-1.14724	-0.06777	0.004566	0.075296	0.838118

Thetotal accruals are measured by $TA_t = NI_t - CFO_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating.

Table 4.7: Summary Statistics of ROE and ROE adjusted by discretionary accruals of different models

Variable	Obs	Mean	Std. Dev.	Variance	Min	Lower Quartile	Median	Upper Quartile	Max
ROE	**28463**	**0.053115**	**0.18443**	**0.034015**	**-1.10803**	**0.024561**	**0.065544**	**0.113909**	**0.654396**
Jones model adjusted ROE	**28463**	**0.06188**	**0.366847**	**0.134577**	**-1.39986**	**-0.07216**	**0.075993**	**0.214822**	**1.43607**
Modified Jones model adjusted ROE	**28463**	**0.043025**	**0.366559**	**0.134366**	**-1.42648**	**-0.08899**	**0.060484**	**0.195915**	**1.42392**
performance-matched Jones model adjusted ROE	**28463**	**0.039969**	**0.398103**	**0.158486**	**-1.71449**	**-0.09089**	**0.066817**	**0.204338**	**1.49824**
Lu Jianqiao model adjusted ROE	**28463**	**0.05335**	**0.363862**	**0.132395**	**-1.39319**	**-0.07786**	**0.068605**	**0.203078**	**1.47053**
Investment-matched Jones model adjusted ROE	**28463**	**0.042376**	**0.36528**	**0.133429**	**-1.43439**	**-0.09033**	**0.060989**	**0.196406**	**1.392**
Investment-matched Lujianqiao model adjusted ROE	**28463**	**0.052667**	**0.362223**	**0.131205**	**-1.40455**	**-0.07889**	**0.068682**	**0.202622**	**1.43446**

Thetotal accruals are measured by $TA'_t = NI_t - CFO_t - CFI_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating, CFI_t is the cash flow from investing of year t.

Table 4.6 and Table 4.7 are summary statistics of ROE and ROE adjusted by discretionary accruals of different models. Table 4.6is using the TA_t to regression betas of above models to measure the non-discretionary accruals and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals. The Table 4.7 is using the TA'_t to regression betas of above models to measure the non-discretionary accruals and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure discretionary accruals.

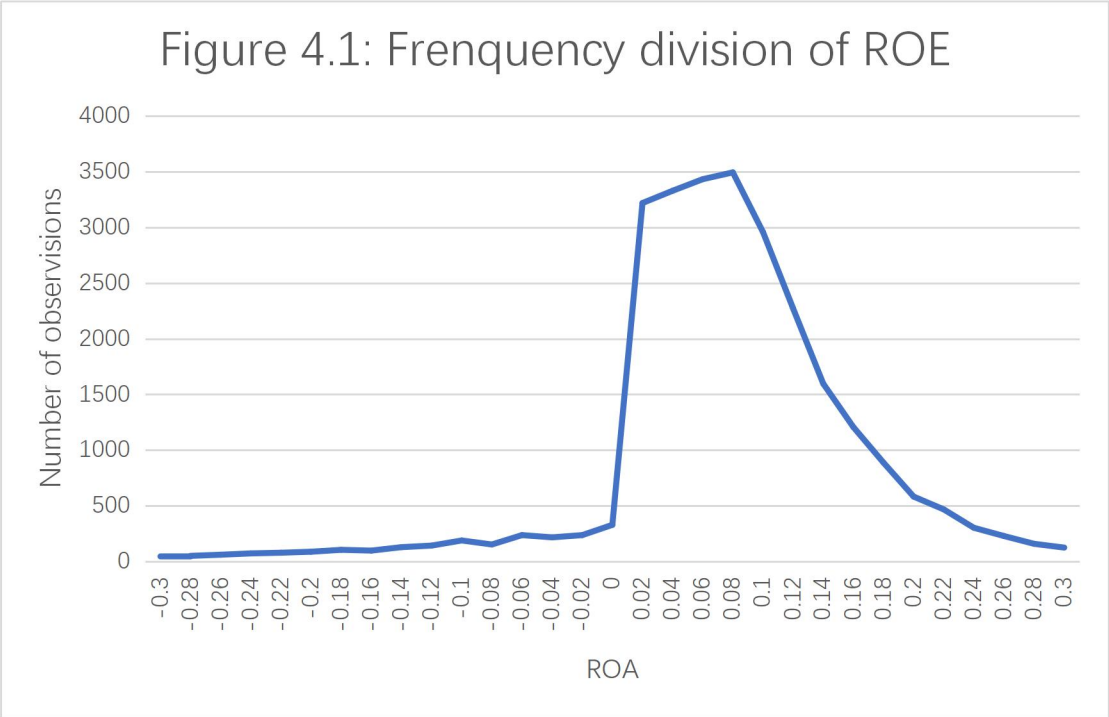


Figure 4.1 is the frequency division of ROE. Figure 4.1 has shown that most firms ROE are between point 0 and point 0.2. In the frequency division of the area from point 0.02 to point 0, there is an abnormal discontinuous that the value is decreasing from 3218 firms to 329 firms. It proves that firms upward their earnings from less than 0 to slightly above 0. The mean of ROE is 0.053 and the peak value is 3493 firms between point 0.08 and point 0.06, and there is a sharp increase between point 0.3 and

point 0.08, the value is from 125 firms to 3493 firms. It proves that firms with high return tend to downward their ROE and keeping it slightly above 0.06. The result is as expect

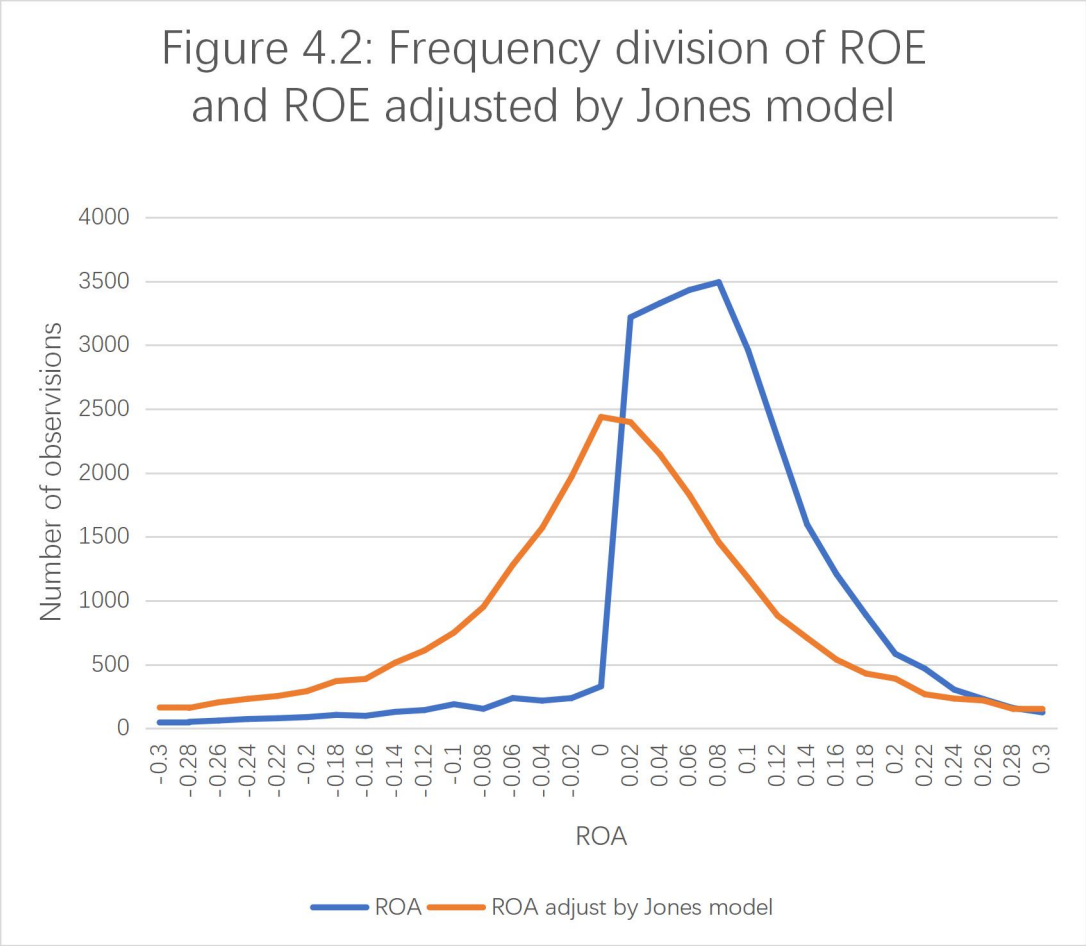


Figure 4.2 is the frequency division of ROE and Jones model adjusted ROE. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of Jones model adjusted ROE. The Jones model is using the $TA_t = NI_t - CFO_t$ to regression betas to measure the non-discretionary accruals and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

After adjusted by the discretionary accruals of Jones model, the discontinuous of the negative area has been removed, the peak value is 2438 firms between point 0 and point -0.02. The change from the point 0 to negative points is more smooth than the frequency division of ROE. The cross point of series 1 and series 2 is between point 0 and point 0.02 which meaning that that firms with negative ROE tend to upward their earnings to above 0. However, above point 0.06, there is no cross between the series 1 and series 2, which mean the discontinuous above point 0.06 to point 0.3 is not as

firms with high return downward their earnings, but as firms with a slight return or negative return upward their earnings.

In conclusion, Figure 4.2 shown that in the Chinese market, Jones model could detect the earnings management of firms with a slight or negative return. For high returns firms, Jones model is failed to detect the earnings management.

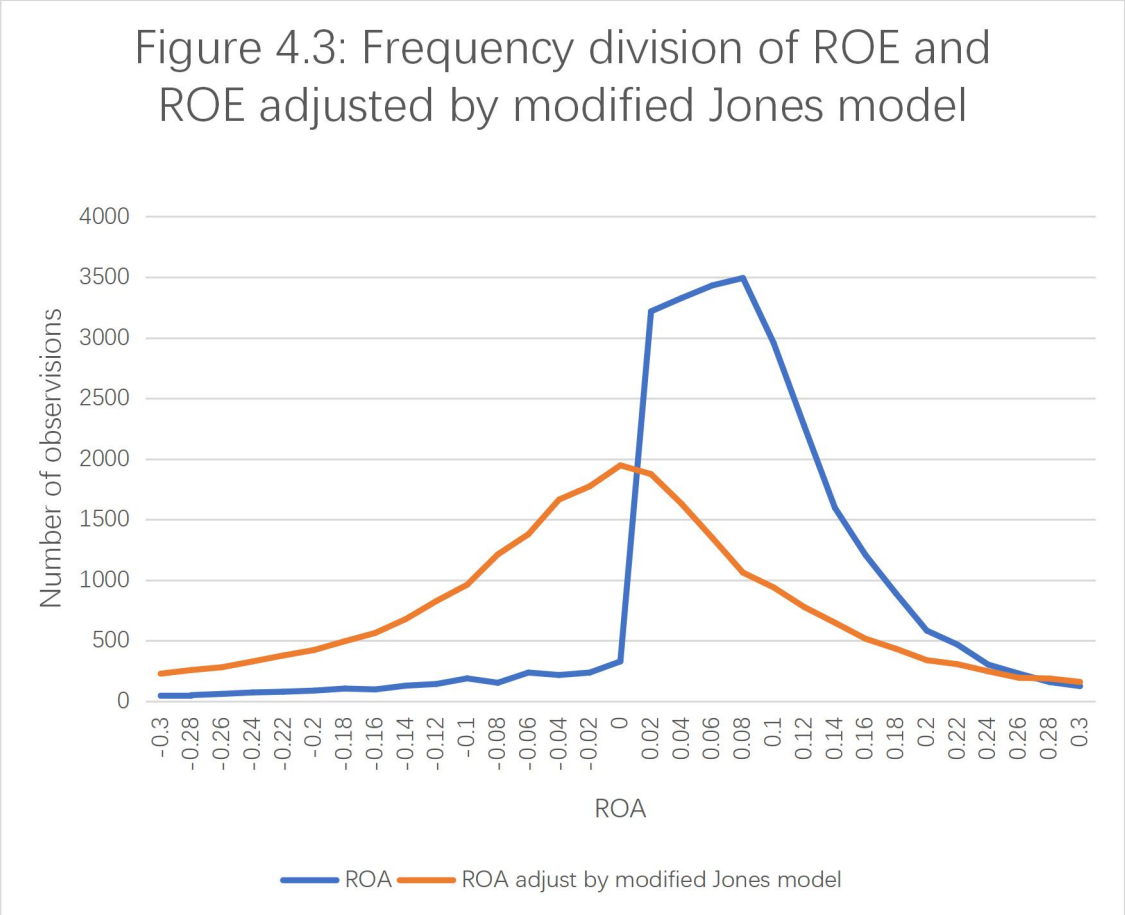


Figure 4.3 is the frequency division of ROE and modified Jones model adjusted ROE. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of modified Jones model adjusted ROE. The modified Jones model is using the $TA_t = NI_t - CFO_t$ to regression betas to measure the non-discretionary accruals, and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

After adjusted by the discretionary accruals of modified Jones model, the peak value of ROE is changed from 3493 firms between point 0.08 and point 0.06 to 1947 firms between point 0 and point -0.02. The cross point of series 1 and series 2 is between

point 0 and point 0.02. The change from above point 0 to negative points is more smooth than the frequency division of ROE and Jones model adjusted ROE. It is shown that the modified Jones model could detect earnings management of firms with a slight or negative return better than Jones model. However, as same as Jones model, the modified Jones model also fails to detect firms' earnings management in the area of high value of ROE.

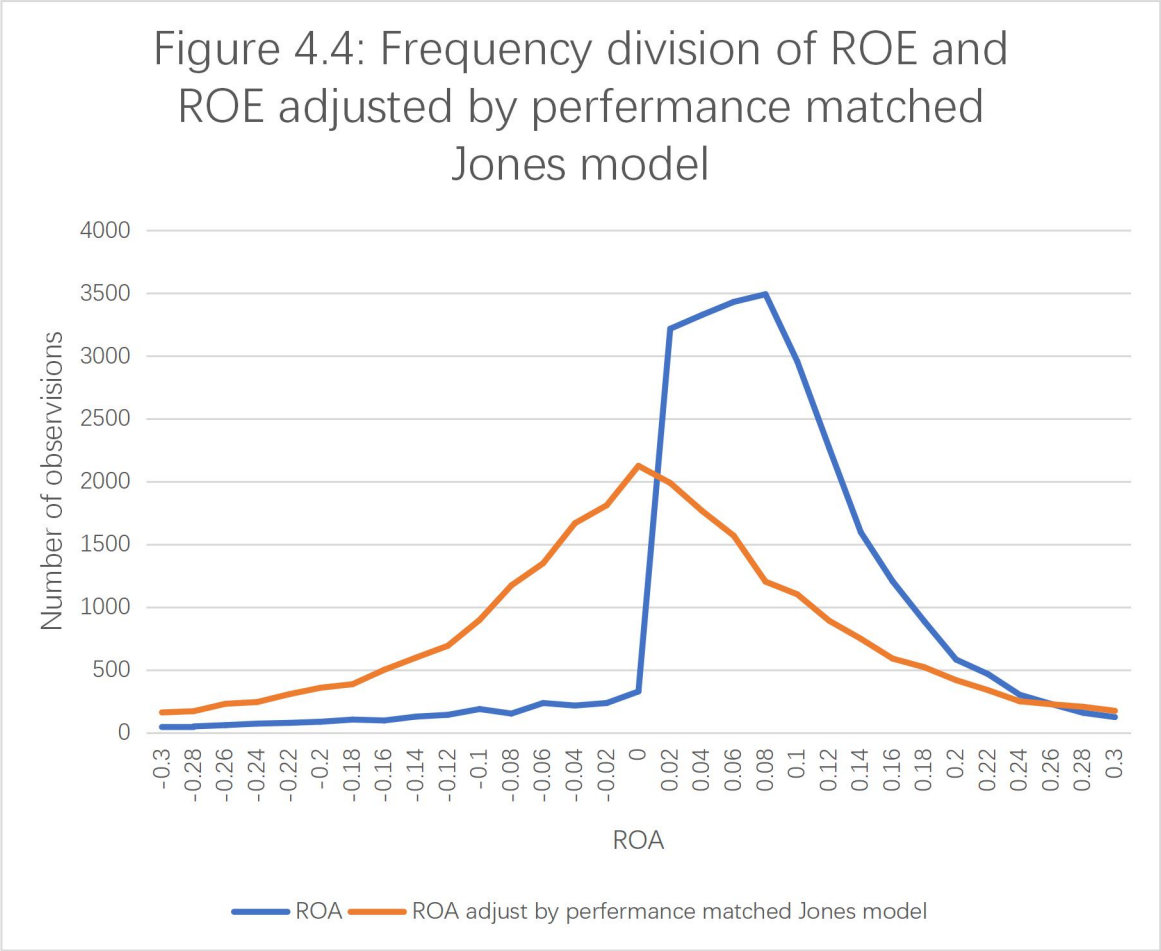


Figure4.4 is the frequency division of ROE and modified Jones model adjusted ROE. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of modified Jones model adjusted ROE. The modified Jones model is using the $TA_t = NI_t - CFO_t$ to regression betas to measure the non-discretionary accruals, and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

When this study regressing betas of performance matched Jones model, according to the collinearity between ROA_t and $1/A_{t-1}$, in some year and industry, the beta of

$ROA_t$is omitted. The same result also is found in other research (Wang Shengnian, Bai Jun 2009). As betas of performance matched Jones model is regression by year and industry, respectively. There are 261 year-industry groups, the beta of ROA_t is omitted in 132 year-industry groups. According to the missing value of beta, in these 132 year-industry groups, the performance matched Jones model is same as modified Jones model.

After adjusted by performance matched Jones model, the peak value of ROE is changed from 3493 firms between point 0.08 and point 0.06 to 2126 firms between point 0 and point -0.02. The cross point of series 1 and series 2 is between point 0 and point 0.02. Moreover, there is a cross between the series 1 and series 2 at point 0.26, it is shown that firms tend to downward their earnings which ROE is higher than 0.26.

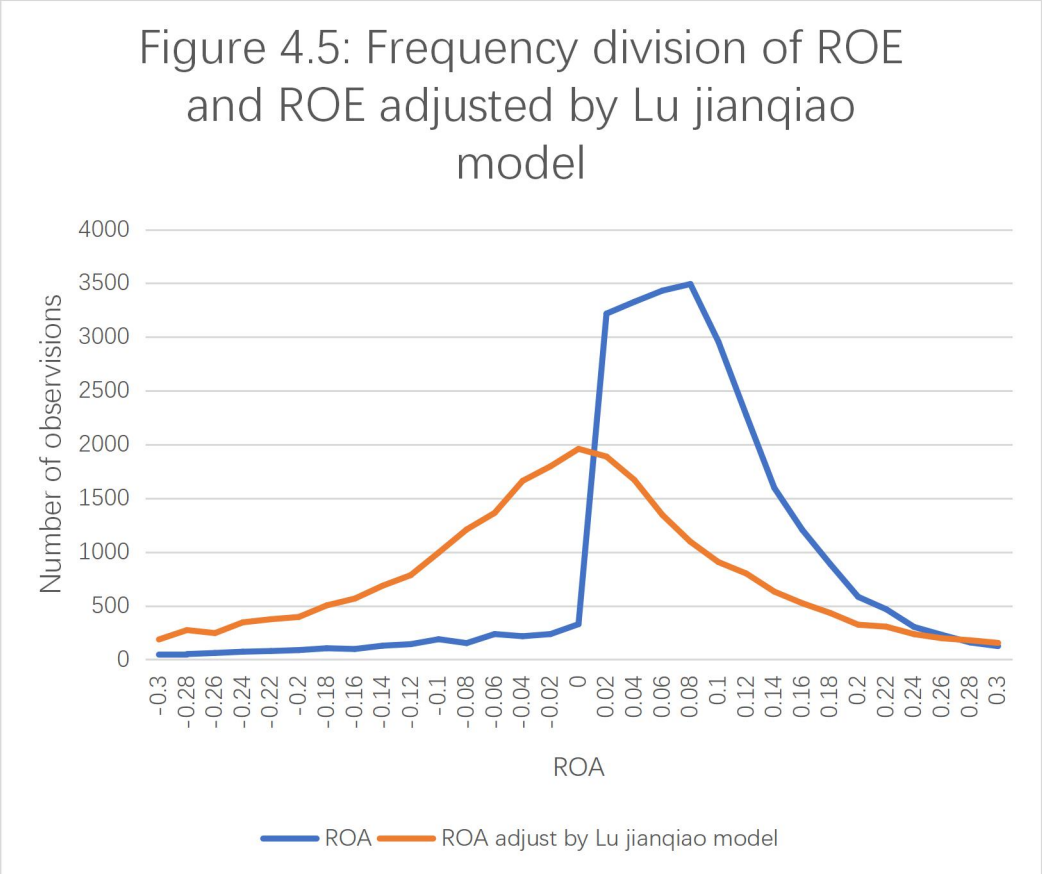


Figure4.5 is the frequency division of ROE and Lu jianqiao model adjusting ROE. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of Lu jianqiao model adjusting ROE. The Lu jianqiao model is using the $TA_t = NI_t - CFO_t$ to regression betas to measure the non-discretionary accruals, and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

After adjusted by the discretionary accruals of Lu jianqiao model, the peak value of ROE is changed from 3493 firms between point 0.08 and point 0.06 to 1960 firms between point 0 and point -0.02. The cross point of series 1 and series 2 is between point 0 and point 0.02. However, as same as Jones model and the modified Jones model, the series 1 has not cross with series 2 at the area of high ROE. The Lu jianqiao model also fails to detect firms' earnings management in the area of high value of ROE.

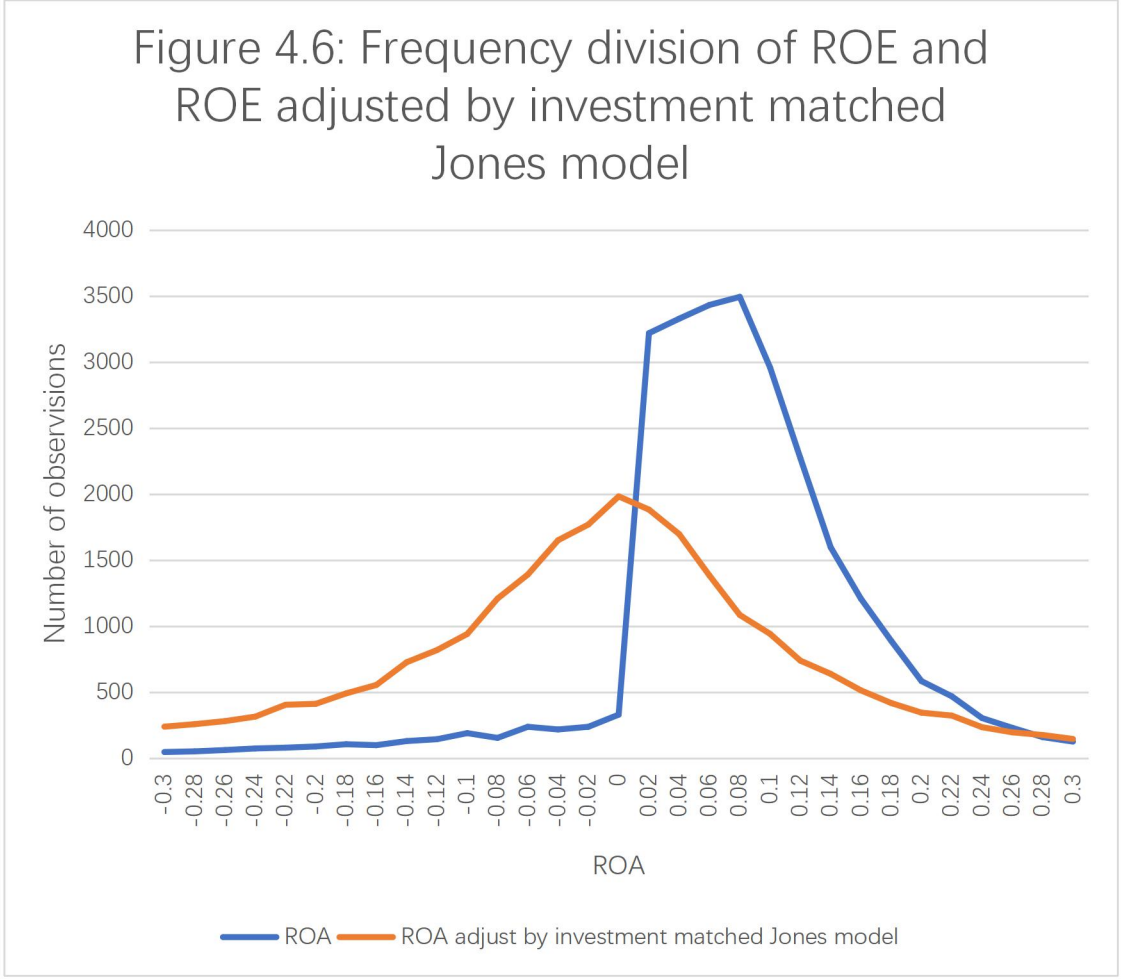


Figure 4.6 is the frequency division of ROE and investment matched Jones model adjusted ROE. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of investment matched Jones model adjusted ROE. The investment matched Jones model is using the $TA_t = NI_t - CFO_t$ to regression betas to measure the non-discretionary accruals, and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

After adjusted by the discretionary accruals of invest matched Jones model, the peak value of ROE is changed from 3493 firms between point 0.08 and point 0.06 to 1982 firms between point 0 and point -0.02. The cross point of series 1 and series 2 is between point 0 and point 0.02. There is no cross point of series 1 and series 2 in the area above point 0.However, the investment matched Jones model also fails to detect firms' earnings management in the area of high value of ROE.

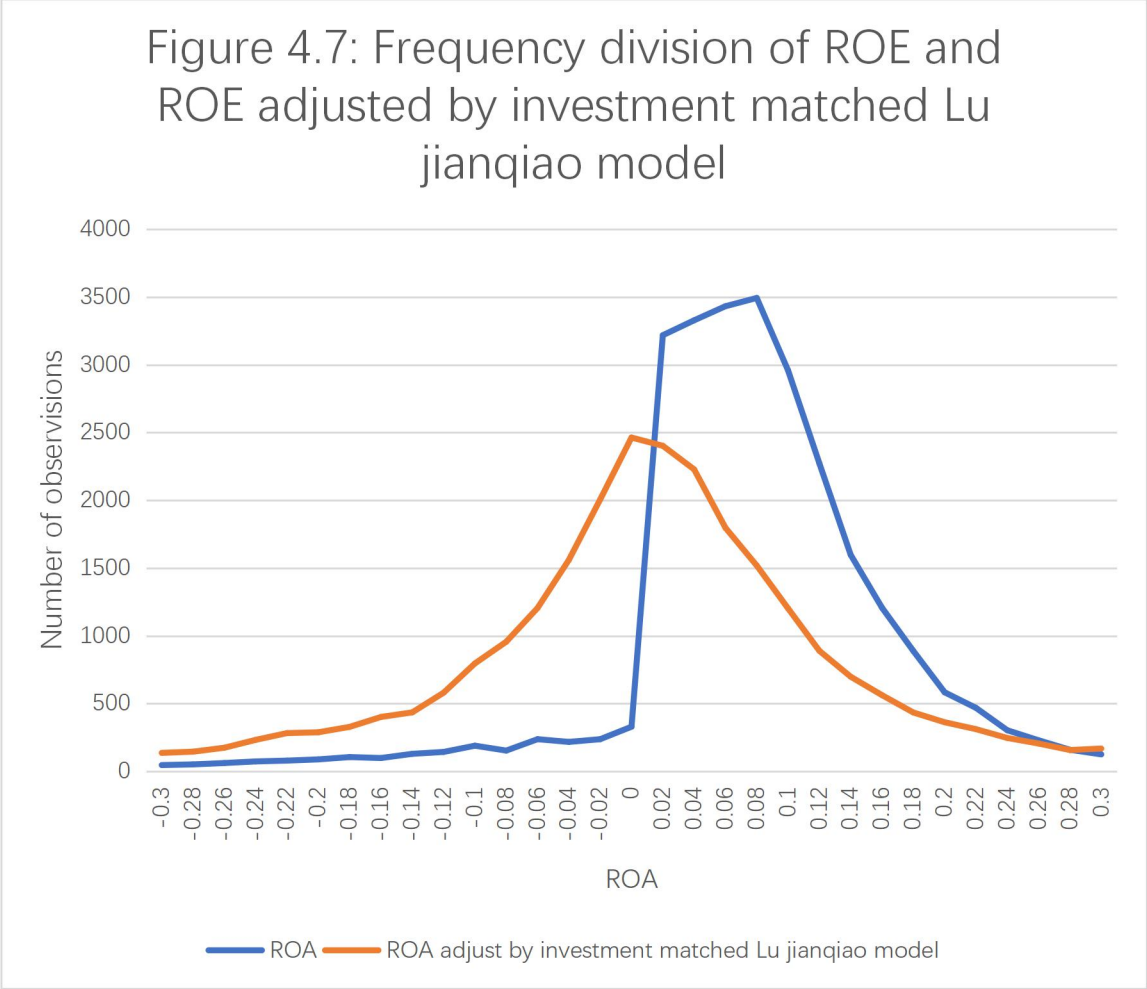


Figure 4.7 is the frequency division of ROE and investment matched Lu jianqiao model adjusted ROE. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of investment matched Lu jianqiao model adjusted ROE. The investment matched Lu jianqiao model is using the $TA_t = NI_t - CFO_t$ to regression betas to measure the non-discretionary accruals, and use $TA_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals

After adjusted by the discretionary accruals of invest matched Jones model, the peak

value of ROE is changed from 3493 firms between point 0.08 and point 0.06 to 2463 firms between point 0 and point -0.02. The cross point of series 1 and series 2 is between point 0 and point 0.02. There is no cross point of series 1 and series 2 in the area above point 0. As same as above models, investment matched Lu jianqiao model is failed to detect earnings management of firms with high earnings.

According to the above frequency division test, in conclusion, both models could detect earnings management of firms with low earnings or negative earnings. For firms with high earnings, the effect of both models is weak. The reason for this result is the undervaluation of total accruals. As the incentive of tax avoidance, high earnings firms tend to down their taxable income through purchase and construction of fixed assets or make equity investment (Li Zengfu, Dong Zhiqiang et al. 2011). However, the cash paid for purchase and construction of fixed assets and payment for investment does not belong to cash flow from operating but cash flow from investing. When this study measure total accruals as net income minus cash flow from operating, the cash flow from investing will be measured part of total accruals and due to an error for measure discretionary accruals. For firms with slight earnings or negative earnings, above models are worked to detect firm' s earnings management because the behaver of investment is less and the error is small. As the increase in earnings, the behaver of investment is increasing and the error is bigger. Thus, above models are failed to detect earnings management of firms with high earnings.

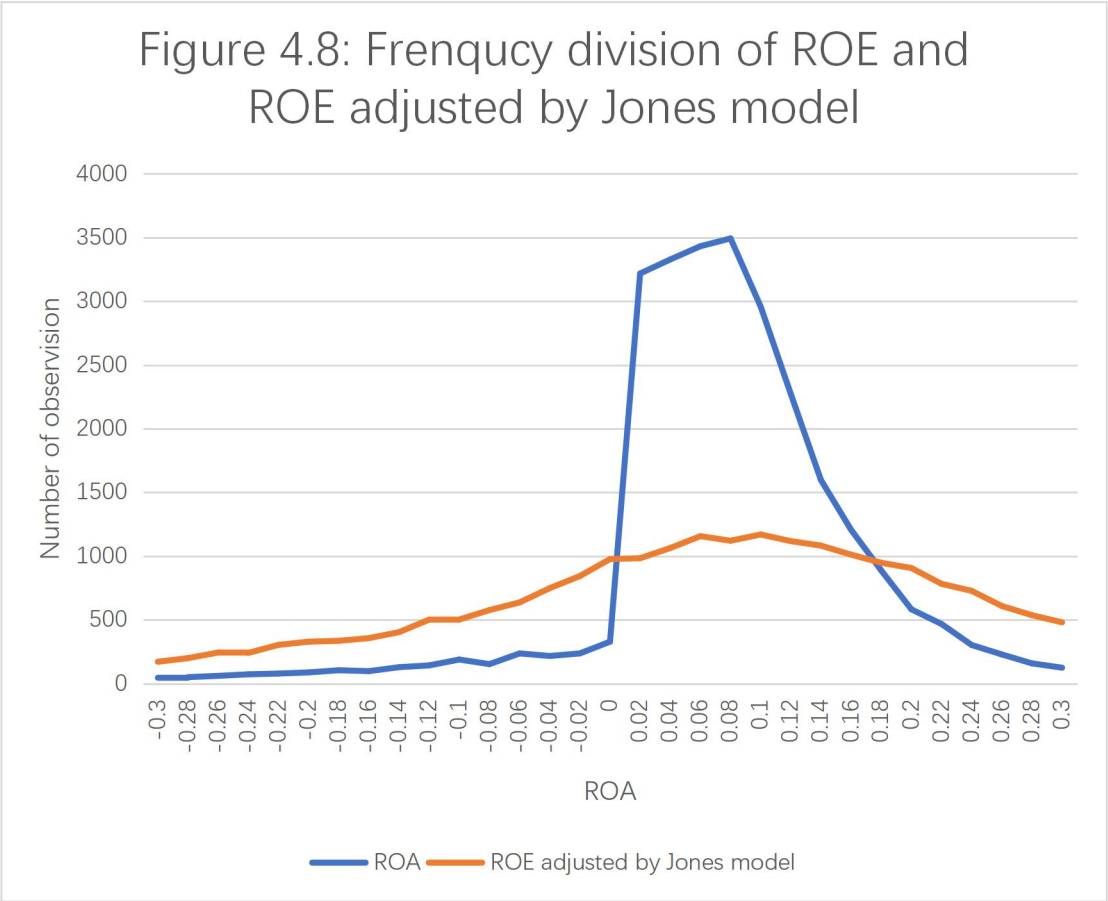


Figure 4.8 is the frequency division of ROE and ROE adjusted by Jones model. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of ROE adjusted by Jones model. The Jones model is using the $TA'_t = NI_t - CFO_t - CFI_t$ to regression betas to measure the non-discretionary accruals, and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

In figure 4.8, the frequencydivision of ROE adjusted by Jones model which measured by TA' shown that the peak point moved from 3493 firms between point 0.06 and point 0.08 to 1170 firms between point 0.08 and point 0.1. There are two cross points of series 1 and series 2. The first cross point of series 1 and series 2 is between point 0 and point 0.02. It shown that firms with negative earnings tend to upward their earnings to above 0. The second cross point of series 1 and series 2 is between point 0.16 and point 0.18. In figure 4.8, at the left area of point 0.18, series 2 is above series

1 which meaning firms with high earnings tend to downward their earnings. The result of frequency division of ROE adjusted by Jones model is as expected.

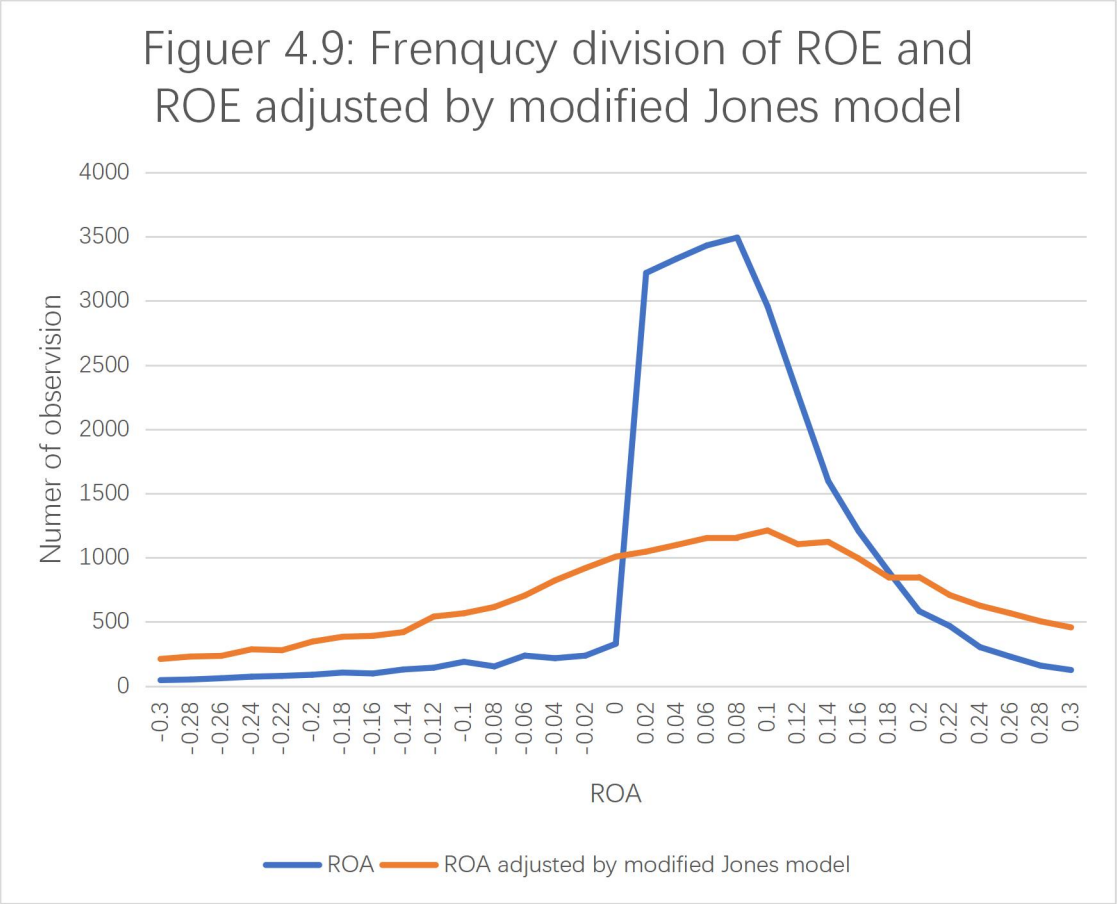
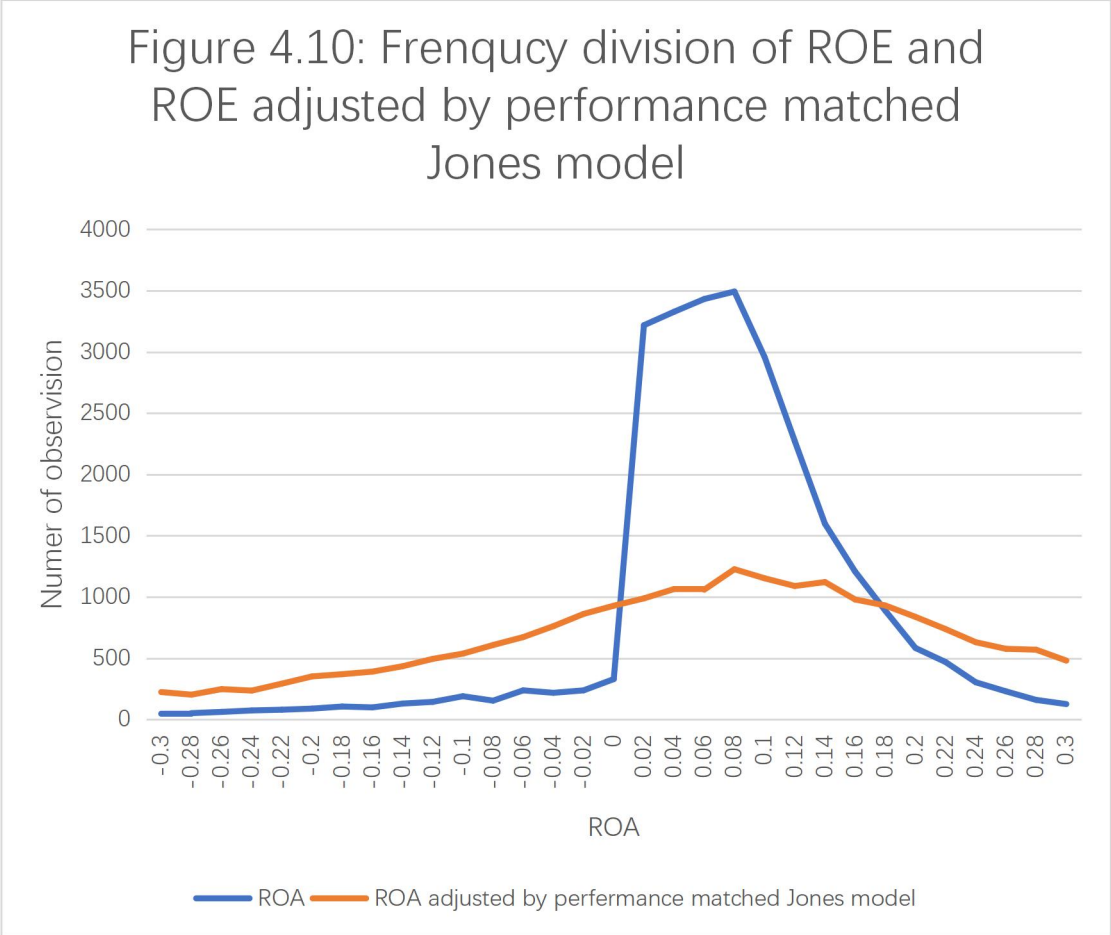


Figure 4.9 is the frequency division of ROE and ROE adjusted by modified Jones model. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of ROE adjusted by modified Jones model. The modified Jones model is using the $TA'_t = NI_t - CFO_t - CFI_t$ to regression betas to measure the non-discretionary accruals, and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

In Figure 4.9, the frequencydivision of ROE adjusted by modified Jones model which measured by TA' shown that the peak point moved from 3493 firms between point 0.06 and point 0.08 to 1212 firms between point 0.08 and point 0.1. There are two cross points of series 1 and series 2. The first cross point of series 1 and series 2 is between point 0 and point 0.02. It shown that firms with negative earnings tend to upward their earnings to above 0. The second cross point of series 1 and series 2 is

between point 0.18 and point 0.2. figure 4.9, at the left area of point 0.18, series 2 is above series 1 which meaning firms with high earnings tend to downward their earnings. The result of frequency division ROE and ROE adjusted by modified Jones

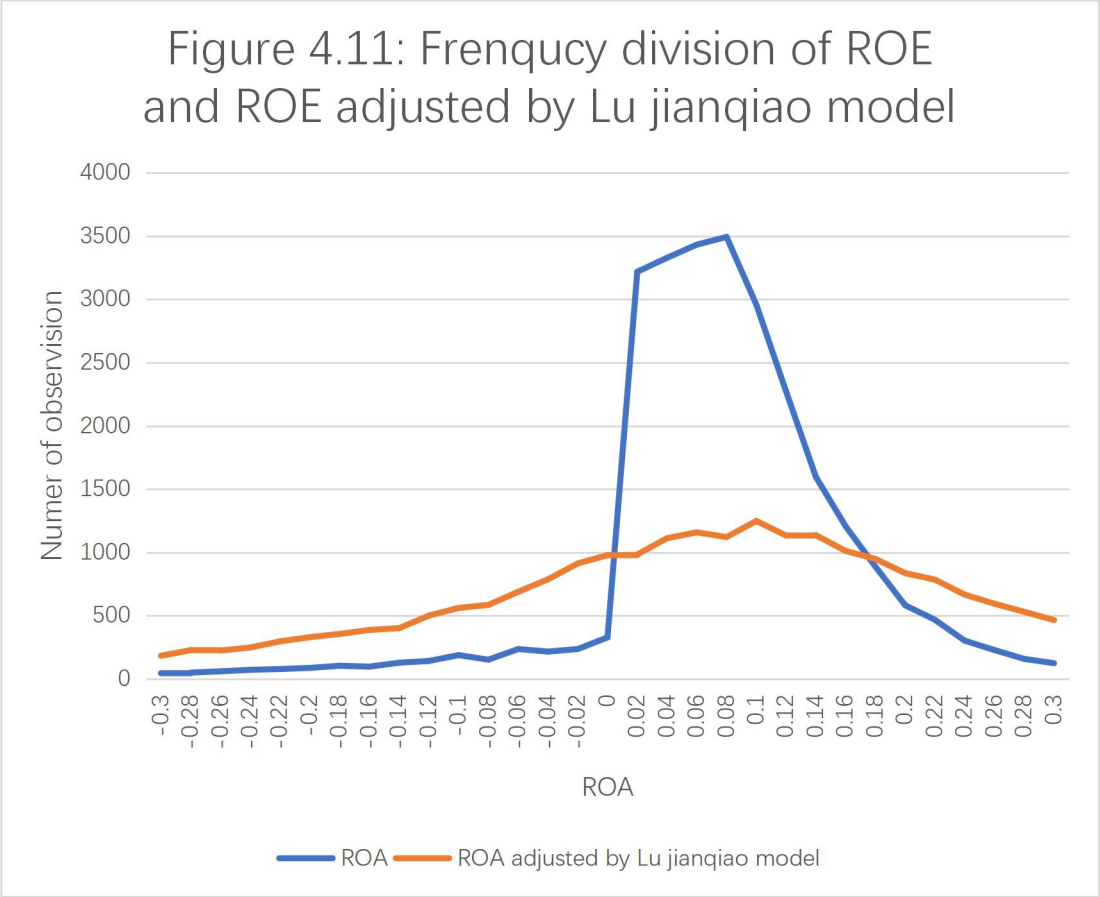


model is as expected.

Figure 4.10 is the frequency division of ROE and ROE adjusted by performance matched Jones model. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of ROE adjusted by performance matched Jones model. The performance matched Jones model is using the $TA'_t = NI_t - CFO_t - CFI_t$ to regression betas to measure the non-discretionary accruals, and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

Figure 4.10, the frequencydivision of ROE adjusted by performance matched Jones model which measured by TA' shown that the peak point moved from 3493 firms between point 0.06 and point 0.08 to 1059 firms between point 0.06 and point 0.08. There are two cross points of series 1 and series 2. The first cross point of series 1 and

series 2 is between point 0 and point 0.02. It shown that firms with negative earnings tend to upward their earnings to above 0. The second cross point of series 1 and series 2 is between point 0.18 and point 0.2. It shown that firms with high earnings tend to downward their earnings. The result of frequency division ROE and ROE adjusted by



performance matched Jones model is as expected.

Figure 4.11 is the frequency division of ROE and ROE adjusted by Lu jianqiao model. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of ROE adjusted by Lu jianqiao model. The Lu jianqiao model is using the $TA'_t = NI_t - CFO_t - CFI_t$ to regression betas to measure the non-discretionary accruals, and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

In figure 4.11, the frequencydivision of ROE adjusted by Lu jianqiao model which measured by TA' shown that the peak point moved from 3493 firms between point 0.06 and point 0.08 to 1249 firms between point 0.08 and point 0.1. There are two

cross points of series 1 and series 2. The first cross point of series 1 and series 2 is between point 0 and point 0.02. It shown that firms with negative earnings tend to upward their earnings to above 0. The second cross point of series 1 and series 2 is between point 0.18 and point 0.2. It shown that firms with high earnings tend to downward their earnings. The result of frequency division ROE and ROE adjusted by performance Jones model is as expected.

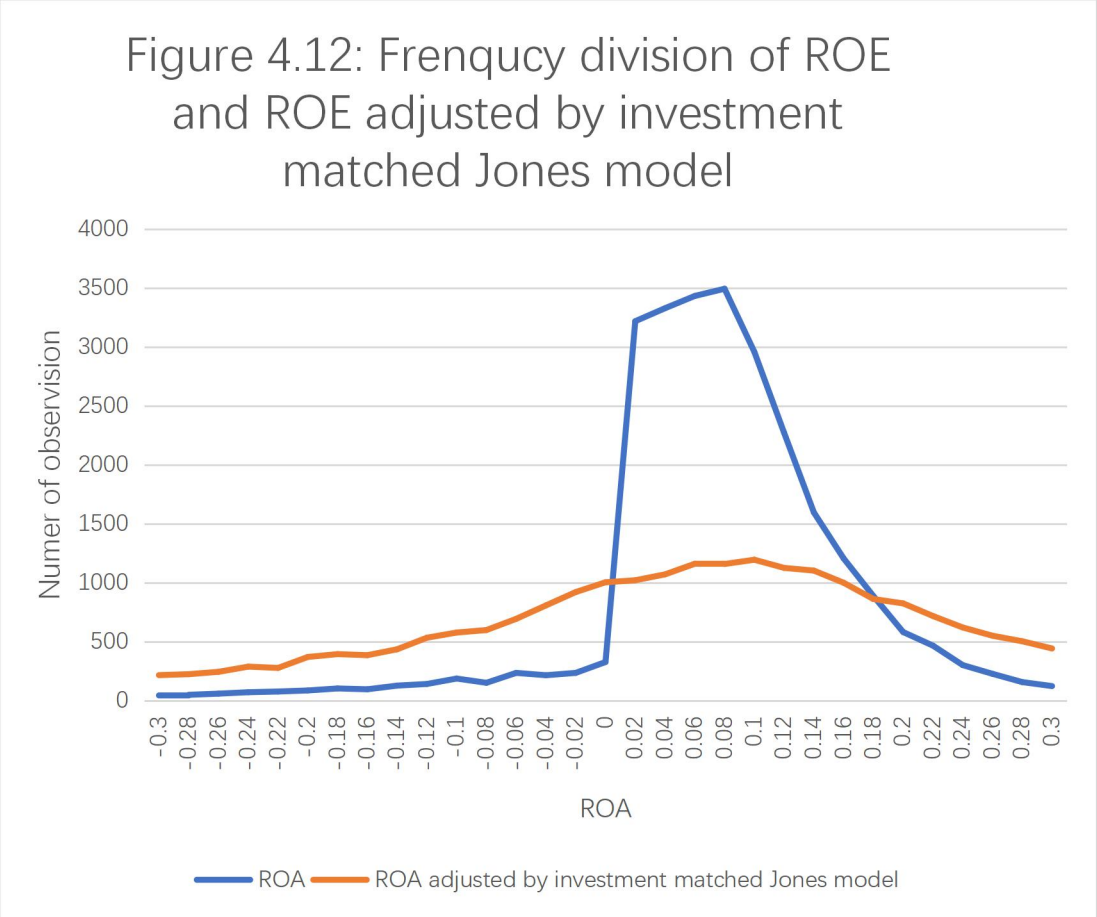
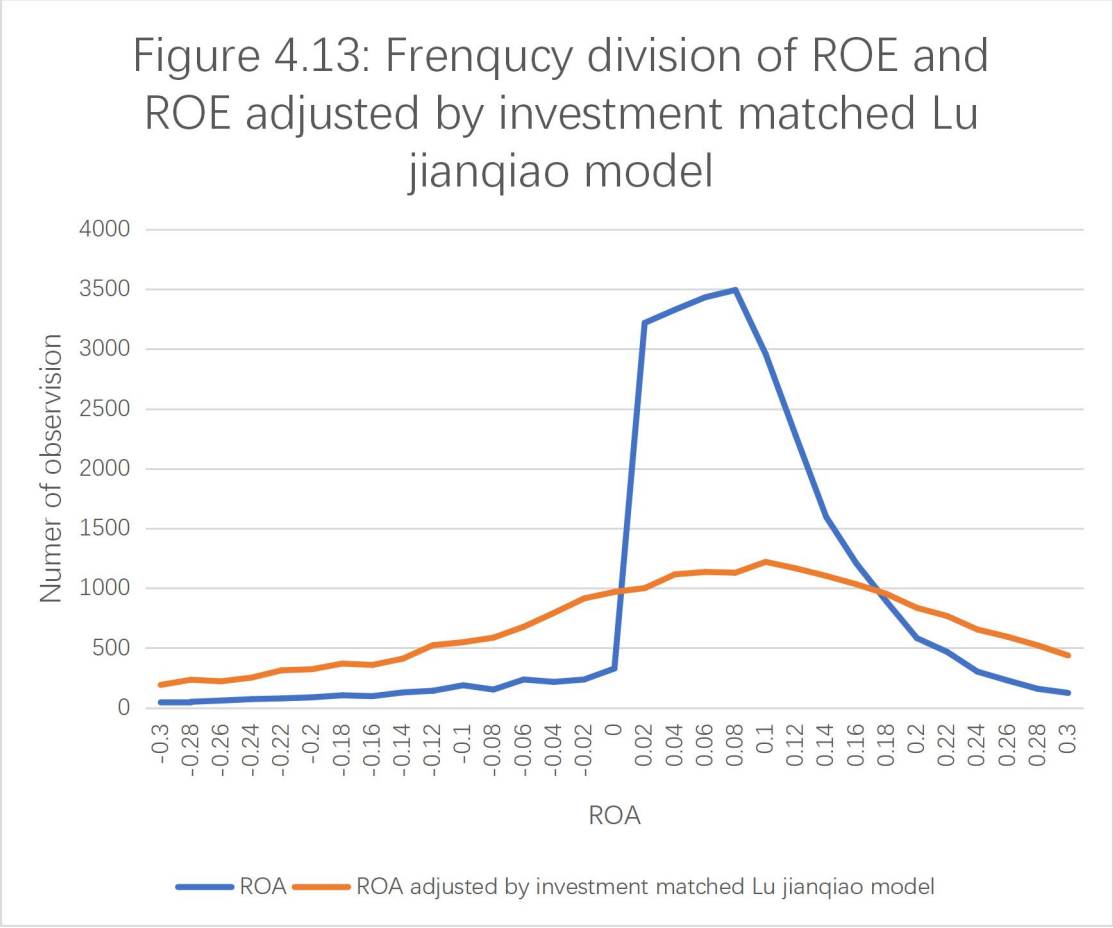


Figure 4.12 is the frequency division of ROE and ROE adjusted by investment matched Jones model. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of ROE adjusted by investment matched Jones model. The investment matched Jones model is using the $TA'_t = NI_t - CFO_t - CFI_t$ to regression betas to measure the non-discretionary accruals, and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

In Figure 4.12, the frequencydivision of ROE adjusted by investment matched Jones model which measured by TA' shown that the peak point moved from 3493 firms

between point 0.06 and point 0.08 to 1196 firms between point 0.08 and point 0.1. There are two cross points of series 1 and series 2. The first cross point of series 1 and series 2 is between point 0 and point 0.02. It shown that firms with negative earnings tend to upward their earnings to above 0. The second cross point of series 1 and series 2 is between point 0.18 and point 0.2. It shown that firms with high earnings tend to downward their earnings. The result of frequency division ROE and ROE adjusted by



investment matched Jones model is as expected.

Figure 4.13 is the frequency division of ROE and ROE adjusted by investment matched Lu jianqiao model. The series 1 is the frequency division of ROE, and the series 2 is the frequency division of ROE adjusted by investment matched Lu jianqiao model. The investment matched Jones model is using the $TA'_t = NI_t - CFO_t - CFI_t$ to regression betas to measure the non-discretionary accruals, and use $TA'_t/A_{t-1} - NDA_t/A_{t-1}$ to measure the discretionary accruals.

In figure 4.13, the frequencydivision of ROE adjusted by investment matched Lu

jianqiao model which measured by TA' shown that the peak point moved from 3493 firms between point 0.06 and point 0.08 to 1220 firms between point 0.08 and point 0.1. There are two cross points of series 1 and series 2. The first cross point of series 1 and series 2 is between point 0 and point 0.02. It shown that firms with negative earnings tend to upward their earnings to above 0. The second cross point of series 1 and series 2 is between point 0.18 and point 0.2. It shown that firms with high earnings tend to downward their earnings. The result of frequency division ROE and ROE adjusted by investment matched Lu jianqiao model is as expected.

Table4.8: The statistics results of ROE and adjusted ROE by various models

	Skewness	Kurtosis	Std. Dev.	Variance
ROE	**-3.11282**	**21.82084**	**0.185164**	**0.034286**
Jones model adjusted ROE	**-1.28629**	**11.87498**	**0.236046**	**0.055718**
Modified Jones model adjusted ROE	**-1.18904**	**10.59345**	**0.277092**	**0.07678**
performance-matched Jones model adjusted ROE	**-0.32112**	**8.774709**	**0.234643**	**0.055058**
Lu Jianqiao model adjusted ROE	**-1.04351**	**10.23306**	**0.27533**	**0.075807**
Investment-matched Jones model adjusted ROE	**-1.12148**	**10.33368**	**0.271038**	**0.073462**
Investment-matched Lujianqiao model adjusted ROE	**-1.03005**	**11.25331**	**0.228566**	**0.052243**

Thetotal accruals are measured by $TA_t = NI_t - CFO_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating.

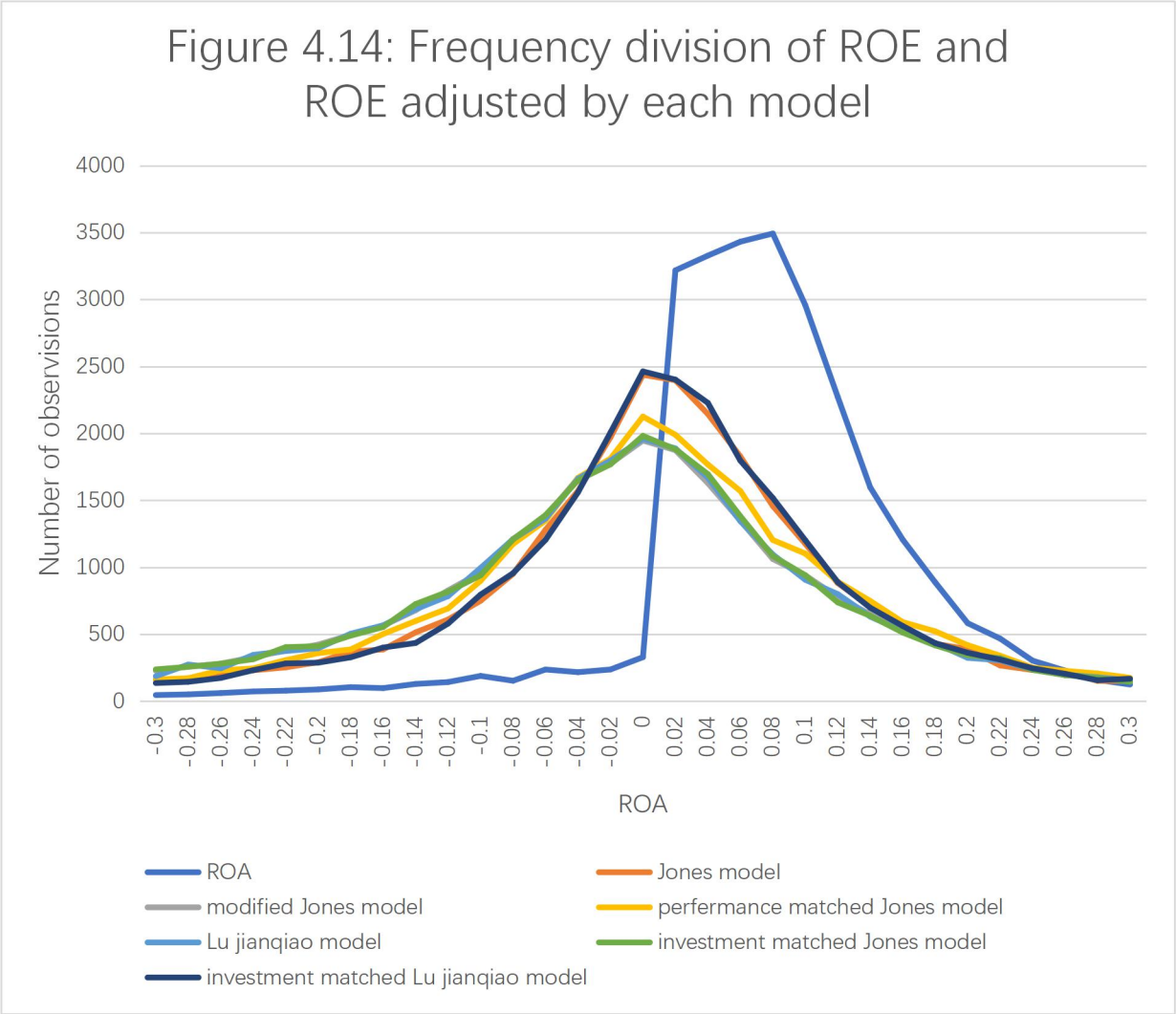


Table 4.9: The statistics results of ROE and adjusted ROE by various models

	Skewness	Kurtosis	Std. Dev.	Variance
ROE	**-3.11282**	**21.82084**	**0.185164**	**0.034286**
Jones model adjusted ROE	**-0.35027**	**7.860083**	**0.359999**	**0.129599**
Modified Jones model adjusted ROE	**-0.37631**	**8.019962**	**0.358466**	**0.128498**
performance-matched Jones model adjusted ROE	**-0.76286**	**9.195141**	**0.390257**	**0.152301**
Lu Jianqiao model adjusted ROE	**-0.28906**	**8.171685**	**0.354976**	**0.126008**
Investment-matched Jones model adjusted ROE	**-0.42528**	**7.929932**	**0.358293**	**0.128374**
Investment-matched Lujianqiao model adjusted ROE	**-0.35035**	**8.091513**	**0.354666**	**0.125788**

Thetotal accruals are measured by $TA'_t = NI_t - CFO_t - CFI_t$; where the TA_t is the total accruals, NI_t is the net income, CFO_t is the cash flow from the operating, CFI_t is the cash flow from investing of year t.

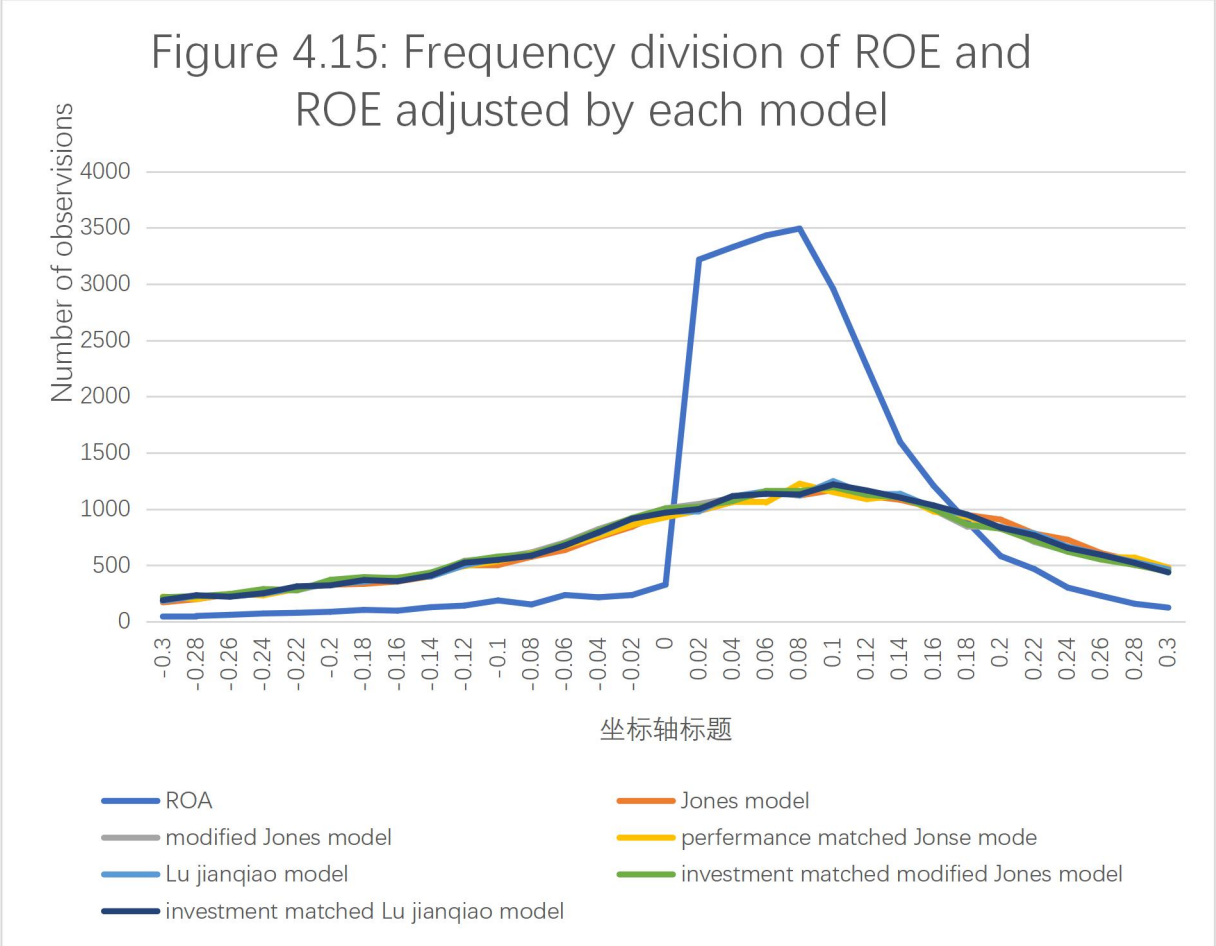


Table 4.8 and Table 4.9 present the statistics results of ROE and adjusted ROE by each model. The value of the distribution's peak point is more close to the mean of ROE when the skewness value is more close to zero. The distribution is more close to the normal distribution

when the kurtosis value is more close to three. When the kurtosis value equals to three, the distribution is the normal distribution. In Table 4.8, the skewness value of performance-matched Jones model adjusted ROE -0.32112 is the smallest one and its kurtosis value 8.774709 shows that the distribution of performance-matched Jones model adjusted ROE is the one closest to the normal distribution. Table 4.8 presents that the performance matched Jones model is the most effective model to detect the firm's earnings management as performance matched Jones model has a weak power to detect earnings management of the firm with high return. In Table 4.9, the skewness and kurtosis values of all modified REO except performance-matched Jones model adjusted ROE decrease obviously. It proves that when the cash flow from investing is eliminated, most of the models become more effective in detecting the earnings management of firm with high ROE. Finally, this study decides to use the Investment-matched Lujianqiao model. The Investment-matched Lujianqiao model is more precise because it excludes long-term assets, intangible assets and the change of income from investment.

Figure 4.14 and figure 4.15 is the frequency division of the ROE and the ROE adjusted by each model. In figure 4.14, both model's TA measured by NI-CFO, and in figure 4.15, both model's TA measured by NI-CFO-CFI.

Compared with figure 4.14 and figure 4.15, in figure 4.14, when the company's ROE at a high level, there is no cross point above the 0.08 percentage, which is not as expected. However, in figure 4.15, this study could find the cross point at 0.2 point, which is as expected.

Therefore, when considering the impact of the investment on the detect earnings management, the model detects the earnings management at a high ROE level is better.

Appendix:

Relevant articles of the《Accounting Standard for Business Enterprises》

"Recognition, measurement and reporting for accounting purposes shall be on an accrual basis."

--Accounting Standard for Business Enterprises: Basic Standard, Article 9

"An enterprise shall reasonably select a depreciation method for a fixed asset in accordance with the expected form for the realization of the economic benefits concerning the fixed asset.

The available depreciation methods consist of the straight-line method, unit of production method, double declining balance method, sum of the years' digits method, etc.

Once an enterprise ascertains the method of depreciation of the fixed asset, it shall not change it randomly, except that the provisions of Article 19 of these Standards are meet"

--Accounting Standards for Enterprises No. 4 – Fixed Assets, Article 17

"With regard to intangible assets with limited service life, its amortization amount shall be amortized within its service life systematically and reasonably.

An enterprise shall amortize intangible assets from the time when it is available for use to the time when it is not confirmed as the intangible assets any more.

The method chosen by an enterprise for the amortization of intangible assets shall reflect the expected realization pattern of the economic benefits which relevant to the intangible assets. If it is unable to determine the expected realization pattern reliably, intangible assets shall be amortized

by the straight-line method.

Generally, the amortized amount of intangible assets shall be recorded into profit or loss for the current period, unless there are other accounting standard."

--Accounting standards for business enterprises No. 6- Intangible Assets, Article 17.

"If the transfer of an entire financial asset satisfies the conditions for stopping recognition, the difference between the amounts of the following 2 items shall be recorded in the profits and losses of the current period:

(1) The book value of the transferred financial asset;

(2) The sum of consideration received from the transfer, and the accumulative amount of the changes of the fair value originally recorded in the owner's equities (in the event that the financial asset involved in the transfer is a financial asset available for sale).

Where an enterprise obtains a new financial asset or undertakes a new financial liability due to the transfer of a financial asset, it shall, on the date of transfer, recognize the financial asset or liability according to its fair value (including the call option, put option, guaranteed liability, future contract, interchange, etc.), and shall treat the net amount as an integral part of the aforesaid consideration through deducting the financial liability from the financial asset.

Where an enterprise concludes a service contract with the transferee of a financial asset on providing relevant services (including receiving cash flow of the financial asset and delivering the received cash flow to the fund preservation institution as designated), it shall recognize a service

asset or liability based on the service contract. The service liability shall be subject to the initial measurement according to its fair value and shall be treated as anintegrate part of the aforesaid consideration."

--Accounting Standards for Enterprises No. 23 - Transfer of Financial Assets, Article12

"If the transfer of partial financial asset satisfies the conditions to stop the recognition, the entire book value of the transferred financial asset shall, between the portion whose recognition has been stopped and the portion whose recognition has not been stopped (under such circumstance, the service asset retained shall be deemed as a portion of financial asset whose recognition has not been stopped), be apportioned according to their respective relative fair value, and the difference between the amounts of the following 2 items shall be included into the profits and losses of the current period :

(1) The book value of the portion whose recognition has been stopped;

(2) The sum of consideration of the portion whose recognition has been stopped, and the portion of the accumulative amount of the changes in the fair value originally recorded in the owner's equities which is corresponding to the portion whose recognition has been stopped (in the event that the financial asset involved in the transfer is a financial asset available for sale).

The portion of the accumulative amount of changes in the fair value originally recorded in the owner's equities which corresponds to the portion whose recognition has been stopped, shall be recognized after the apportionment of the accumulative amount according to the relative fair values of the portion of financial asset whose recognition has been stopped and the portion of

financial asset whose recognition has not been stopped."

--Accounting Standards for Enterprises No. 23 - Transfer of Financial Assets, Article13

"The profit statements shall at least separately present items reflecting the following information: (1) the business incomes; (2) the business costs; (3) the business taxes; (4) the sale expenses; (5) the administrative expenses; (6) the financial expenses; (7) the investment gains; (8) the profits and losses on the changes in fair value; (9) the losses on the asset impairment; (10) the profits and losses on the disposal of non-current assets; (11) the income tax expenses; and (12) the net profits.

The financial enterprise may, according to its particularities, present the items in the profits. The benefits of fair value change include the fair value change of investment real estate, debt restructuring, non-currency exchange and trading financial assets."

--Accounting Standards for Enterprises No. 30 - Presentation of Financial Statements, Article 27

"Cash flows statements shall be reported for operating activities, investing activities and financing activities, respectively."

--Accounting standards for enterprises No.31- Cash flow statements, Article 4

"The term "investing activities" refers to those activities of an enterprise, such as the purchase and construction of long-term assets and the investments and disposal activity that are not considered to be cash equivalents"

--Accounting standards for enterprises No.31- Cash flow statements, Article 12

"At least, the items reflecting the following information for the cash flows arising from investing

activities shall be presented separately: (1) Cash received from returns of investments;(2) Cash received from returns on investments;(3) Net cash received from the disposal of fixed assets, intangible assets and other long term assets;(4) Net cash received from the disposal of subsidiaries and other business entities;(5) Other cash received relating to investing activities;(6) Cash paid for the purchase and construction of fixed assets, intangible assets and other long term assets;(7) Cash paid for investment;(8) Net cash paid for the acquisition of subsidiaries and other business entities; and(9) Other cash payments relating to investing activities."

--Accounting standards for enterprises No.31- Cash flow statements, Article 13

Chapter 5: Directors with Financial Background and Earnings Management

Abstract

From the impact of the director's financial background on earnings management. Previous studies find that if a director with the financial professional title CPA, his supervision on the manager will be more effective (Jihong, Lizhu 2014) However, the CPA is not the only measure of the director's financial background, the director with a professional title like CFA, ACCA or senior accountantalso could to measure the director's financial background. Thus, this section’s objective of this study is to measure the director's financial background more accurately and then to research the impact of the director's financial background on the company's earnings management.

5.1 Introduction

Based on the new model developed about how to measure earnings management for Chinese listed companies,this study investigate the impact of the director's financial background on the company's earnings management. The results show that the impact on the company's accrual earnings management is *negative*, the impact on the company's accrual earnings management is *negative*, while the impact on the company's real activists earnings management is *positive* when the director has some financial education or work experience. These results indicate that directors with financial background tend to help the controlling shareholder to manipulate earnings through real activities rather than accruals.

5.2 Literature Review

Executives with “CPA Work Background” may have supervisory governance effects on earnings management. Executives with “CPA Work Background” have received systematic and professional training in the accounting firm. They have experience in handling complex accounting business and transactions, auditing clients from different industries and firms, and that giving them the industry expertise (Beasley, Carcello et al. 2000, Imhoff Jr 1978).

DeFond, Francis (2005) found that when a professional accounting financial expert entered the audit committee, the market response was significantly positive. However, when a financial expert without accounting experience entered the audit committee, the market response was not significant. This result indicating that professional accounting knowledge and skills of executives could enhance the quality of financial reporting and corporate governance, and increased the value of shareholders.

The study by Xie, Davidson III et al. (2003) also found that the company has lower current discretionary accruals when audit committee members included experts with financial skills. Therefore, hiring executives with “CPA work background” can benefit the company such as limit earnings management and improve the quality of financial reporting.

As accrued earnings management, real earnings management is also an important means of exaggerating reported earnings (Roychowdhury 2006, Cohen, Dey et al. 2008, Gunny 2010, Zang 2012), and external monitoring of high-quality audit report

can be reduced the company's accruals and real earnings management simultaneously. (Chen Songsheng, Dong Jinsheng et al. 2012). Therefore, executives with a CPA working background can limit the company's accruals and real earnings management.

In the study of Zhao Wenping, Zhang Yinan et al. (2015), the financial work experience of senior managers can significantly inhibit the real earnings management. The higher the proportion of executives with financial work experience in the management team, the lower the real earnings management level of the company will be. However, the influence of financial education background on earnings management is not significant.

However, there is no significant evidence that the experience and skills of CPA executives significantly oversee and limit the company's earnings management behaviour (Jihong, Lizhu 2014). Their study has found that “office associations” (the executive with a CPA working background was/is working in the accounting firm which issue the audit report) give executives the ability to perform additional accrued earnings management, that allows auditors to accept higher levels of accrued earnings management and made the company's audit supervision more lenient. That let the company has not turned to higher-cost real earnings management and has a lower level of real earnings management. This shows that in China's listed companies, the executive with work skills and experience of CPA has not benefited the company. Not only did they not play their due role in the management of earnings, but they “helped to abuse”, which made the company have higher levels of accruals earnings

management (Jihong, Lizhu 2014).

Firms' managers have sufficient motivation to conduct earnings management to meet the requirements of creditors on relevant financial indicators (Liu yixuan 2016). Senior managers with banking background have a good external relationship network, and a clearer understanding of the debt decision-making and approval process can increase enterprises' access to key information and resources, which may help them implement earnings management to obtain more credit financing.

Research on the literature of independent directors' restraining earnings management shows that the financial background will affect the supervision effect of independent directors, and independent directors with financial background have a greater supervision effect on earnings management. Xie, Davidson III et al.'s （2003) study showed that independent directors with financial background have a better understanding of the means of earnings management, which can significantly inhibit the degree of accrued earnings management.

Wang Bing (2007) studied Chinese listed companies from 2002 to 2004 and found that independent directors did not improve earnings quality, but independent directors with financial background could significantly improve earnings quality.

Hu Luanming, Tang Songlian (2008) examined the relationship between independent directors and earnings information quality of listed companies in China from 2002 to 2006, and found that when with a high proportion of independent directors with

financial background in the board of directors, the quality of accrued earnings information of companies was better.

In conclusion, previous studies were focus on the impact of executives' CPA work background on firm's earnings management. However, there are two problems have been ignored.

5.3 Hypothesis

Firstly, as Beasley, Carcello et al. (2000) explain, the CPA work background could give executives the experience in handling complex accounting business and transactions and different industries expertise, and that could help executive to manipulate firm's earnings. However, the CPA work experience is not the only way to get skills about earnings management. There are some other titles like CFA, ACCA or senior accountant also have ability to manipulate firm's earnings. Moreover, for the normal executives, there is no necessary to have different industries experience to do earnings management. They could manipulate their firm's earnings just with know well their own firm's industry laws and regulations. Thus, this study will expand the definition of "financial background", not only the "CPA work background", but also the relevant professional, such as economists, senior accountant, senior auditor etc. Moreover, Beasley's (2000) study was focusing on the CEO's financial background but not the director's. Since directors also have supervisory functions, directors with financial background should be able to better exercise their supervisory functions and inhibit the earnings management of the company. Therefore, to verify whether the

previous conclusion is still valid after expanding the definition of directors' financial background. This study proposes the hypothesis:

H_1: directors with financial background can limit the firm's earnings management.

According to the agency theory, directors, as representatives of shareholders, have the motivation to supervise senior executives. Besides, compared with independent directors, non-independent directors are usually nominated by majority shareholders. Compared with independent directors, non-independent directors have a more relevant relationship with shareholders and are even the representatives of majority shareholders on the board of directors.As a result, they have a greater incentive to monitor whether managers hurt shareholders, while financial background can make directors' oversight more effective.In other words, if directors with financial background work for shareholders, they will have a stronger incentive to corporate earnings management and a more significant restraint on corporate earnings management.

Therefore, this paper puts forward the hypothesis:

H_2 : if the director with financial background is duality in the largest shareholder's firm, the firm's earnings management will be limited.

5.4 Methodology

In order to investigate H_1 and H_2, this study will use 5 models to measure the firm's discretionary accruals, respectively: 1) modified Jones model; 2) Lujianqiao model; 3)

investment marched modified Jones model; 4) investment marched Lujianqiao model. 5) the real activity earnings management.

5.4.1 Data

Table 5.1:Summary Statistics of Dependent Variables and Independent Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Fd	**12573**	**2.047**	**1.911**	**0**	**13**
Fdratio	**12573**	**0.224**	**0.206**	**0**	**1**
dum_Fd	**12573**	**0.754**	**0.431**	**0**	**1**
Fdtop1	**12573**	**0.516**	**0.860**	**0**	**6**
Fd_duality	**12573**	**0.700**	**1.003**	**0**	**7**
BSIZE	**12573**	**9.127**	**1.884**	**5**	**15**
BSHL	**12573**	**0.013**	**0.058**	**0**	**0.373**
IND	**12573**	**3.322**	**0.699**	**1**	**8**
CEO_duality	**12573**	**0.143**	**0.350**	**0**	**1**
TOP1	**12573**	**0.237**	**0.183**	**0.003**	**0.632**
SOE	**12573**	**0.105**	**0.189**	**0**	**0.75**
MSHL	**12573**	**0.005**	**0.027**	**0**	**0.188**
ROA	**12573**	**0.028**	**0.069**	**-0.437**	**0.200**
LNA	**12573**	**22.204**	**1.400**	**18.687**	**25.796**
CFO	**12573**	**0.043**	**0.080**	**-0.203**	**0.257**
LEV	**12573**	**1.586**	**1.921**	**-3.435**	**12.959**

Fd: is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

This study uses all Chinese listed firms in the mainboard of Shanghai Stock Exchange and Shenzhen Stock Exchange from 2007 to 2016 as the research sample. The original sample is 13215 firm-years. this study eliminate 385 sample as data unavailable, eliminate 345 sample of financial industry firm, eliminate 20 sample of

educational industry firms and health and social work industry firms. The total sample size is 12573. All data come from CSMAR and firms' annual report. All variables are winsorized at 1 per cent and 99 per cent to control for potential outlier influence.

Table 5.1 presents the summary of descriptive statistics of all variables. In Chinese market the board size of firms is from 5 directors to 15 directors, and there are 9 directors set in board in average. In average, there are 2 directors with financial background, and the maximum is 13. For these directors with financial background, there are 0.7 directors is working for shareholders and 0.5 directors is working for the largest shareholder.

5.4.2 Model specification

In order to investigate H1, this study use the regression model as follow:

$$DA = \alpha + \beta_1 Fd + \sum_{i=2}^{n} \beta_i Controls + \varepsilon \quad (31)$$

$$DA = \alpha + \beta_1 Fdratio + \sum_{i=2}^{n} \beta_i Controls + \varepsilon \quad (32)$$

$$DA = \alpha + \beta_1 Dum\_Fd + \sum_{i=2}^{n} \beta_i Controls + \varepsilon \quad (33)$$

$$DA = \alpha + \beta_1 Fdtop1 + \sum_{i=2}^{n} \beta_i Controls + \varepsilon \quad (34)$$

$$DA = \alpha + \beta_1 Fd\_duality + \sum_{i=2}^{n} \beta_i Controls + \varepsilon \quad (35)$$

5.4.2.1 The dependent variable

DA: represents the level of earnings management of the firm i at year t and measured

by the Jones model, modified Jones model, Lujianqiao model, investment marched modified Jones model and investment marched Lujianqiao model and into absolute value, respectively.

EM_Real : represents the level of real earnings management of the firm i at year t, and measured by abnormal cash flow from operating, abnormal cost of production, abnormal discretionary expenditure, and abnormal real earnings management, respectively.

5.4.2.2 Key Independent Variables

Fd: is the number of financial directors setting on the board.

Fdratio: is the ratio of financial directors setting on the board

Dum_Fd: is the dummy variable that 1 is there are some financial directors setting on the board, 0 is other.

Fd, Fdratio and Dum_Fd are using to test the H1 that whether the financial director could limit the firm's earning management or not.

Fdtop1: is the number of financial directors working for the largest shareholder.

Fd_duality: is the number of financial directors working for top 10 shareholders.

Fdtop1 and Fd_duality is using to test the H2 that whether the financial director could limit the firm's earning management or not, if the financial director is working for shareholders.

5.4.2.3 Control variables

Bsize represents board size. Lipton, Lorsch (1992) point out that there is a negative relationship between board size and earnings management. In particular, with the increase in the number of directors sitting on the board, the quality of monitoring function will decrease, and the degree of earnings management increases. However, according to the results documented by Xie, Davidson III et al. (2003), he find that with the increase of the number of directors sitting on the board, the possibility that there are some directors with financial professional background sitting in the board increases. Thus, the quality of monitoring function may increase, and the extent to which firms manipulate their earnings decreases.

IND represents the percentage of independent directors sitting on the board. A high proportion of independent directors on the board could increase the board independence (Beasley 1996), and the supervision from the board can be more effective (Klein 2002). Therefore, the coefficient of the proportion of independent directors on the board is expected to be negative (Dechow, Sloan et al. 1996, Xie, Davidson III et al. 2003). However, there some researches show that the relationship is not significant (Clarke, Ferris et al. 2006)

CEO_duality represents CEO duality. Dechow, Sloan et al. (1996) points out that whether the chairman of the board also works as CEO will affect the firm's earning management. Given that CEO is supervised and monitored by the board of directors, if the chairman of the board also works as a CEO of this firm, it tends to more likely

to manipulate earnings because of lacking monitoring function. Wang Jianxin (2007) point out that the possibility of earnings management will increase if the Chairman and the CEO is the same person.

TOP1 represents the largest shareholder's shareholding ratio. n the one hand, the largest shareholder could supervise and prevent the firm's earnings management. On the other hand, the largest shareholder may infringe small shareholders' interest through earnings management. In previous studies, the relationship between earnings management and the largest shareholding is inconsistent, and that may be caused by the difference of samples selected. Porta, R. L., Lopez-de-Silane et al. (1998) found a positive relationship between the proportion of largest shareholding and earnings management, Bushman, Chen et al. (2000) and(Fan, Wong (2002) have proposed the same view and Lee, Xiao (2002) also got the same conclusion based on the Chinese market. However, from the research of (Li, Guan 2004), there is a non-linear relationship between the proportion of the largest shareholding and earnings management. Firm's earnings management will increase as the rise of the largest shareholding if the proportion keeps rising, the firm's earnings management will decrease. However, Lu Chuang, Liu Junyong et al. (2011) gets the opposite results.

SOE represents the percentage of a firm's total shares owned by SOE. As firm shares hold by government, firms may get more supports in financial and political from the government. Those supports will influence on firm's earnings management.Li Zengfu, Dong Zhiqiang et al. (2011) document that the relationship between the proportion of

SOE shareholding and earnings management is positive, but Lin, Lu et al. (2012) find that the relationship is negative.

MSHL is the percentage of a firm's total shares owned by managers of the firm. As the increase of shares held by managers, the motivation of managers for the dividend will increase. This will push managers to raise the firm's earnings through account method manipulate Loebbecke, Eining et al. (1989). Otherwise, a high proportion of managers' shareholding may decrease the agent cost and managers' income will consistent with the value of firms. Thus, it may reduce the level of earnings management (Jensen, Michael C., Meckling 1976, Warfield, Wild et al. 1995). In previous studies, the proportion of managers' shareholding is negative with discretionary current accruals (LI, GUAN 2004, Eng, Mak 2003). They argue that the negative relationship may because of low proportion managers' shareholding raising the level of information disclosure.

ROA is the firm's return on total assets. Based on the management compensation hypothesis of positive accounting theory, since managers' remuneration is tied up with firm's performance, managers are willing to increase the account earnings (Watts, Zimmerman 1978, Zmijewski 1984). In addition, managers of firms with poor performance tend to raise earnings to prevent being fired (Siwei 2012, Roychowdhury 2006). However, for those firms with good performance, due to the high demand of high share price and investment, they tend to raise their earnings (Jha 2013, Sajadi, Dastgir et al. 2011, Xu, Ji 2016). Therefore, the relationship between firm

performance and earnings manipulate is not clear andthis study will test in the following section.

LNA is the natural log of assets. On the one hand, large firms have the incentive to increase their earnings to increase their share prices (Lin, Lu et al. 2012). On the other hand, as positive accounting theory, large firms tend to decline accrual earnings because of the political cost hypothesis (Watts, Zimmerman 1978, Zmijewski 1984). Thus, this indicates that a positive relationship between firm size and discretionary current accruals is expected(Barth, Elliott et al. 1999, Harry, DeAngelo et al. 1996, Chin, Pengal 2009) since accruals will be reflected in the share price. However, for the real activities manipulation, Sajadi, Dastgir et al. (2011) found a negative relationship between abnormal discretionary expenditure and the firm's size. Abnormal cash follows from operating and abnormal production also are negatively related to firm size, although the abnormal discretionary expenditure has a positive relationship with firm size (Roychowdhury 2006). However, Li Zengfu, Dong Zhiqiang et al. (2011) point out that the abnormal production is positively associated with firm size. Overall, the positive relationship between firm size and discretionary current accruals is expected, and the negative relationship between firm size and abnormal cash follow from operating as expected. At last, the relationship between firm size and abnormal production and abnormal discretionary expenditure are not clear and it is an empirical test.

LEV is the firm's leverage ratio. Based on the debt-equity hypothesis of positive

accounting theory, a higher level of debt to equity ratio will urge managers to push the accounting performance through accounting manipulates (Watts, Zimmerman 1978, Zmijewski 1984). Roychowdhury (2006) argues that firms with high leverage have incentives to increase their earnings to evade the debt crisis, previous researches have shown a positive relationship between firm financial leverage and discretionary current accruals (Li Zengfu, Dong Zhiqiang et al. 2011). In addition, creditors have the incentive to supervise a firm's performance and prevent earnings management. Thus, high leverage may cause a low level of earnings management. (Li Zengfu, Dong Zhiqiang et al. 2011) found a negative relationship between abnormal discretionary expenditure and financial leverage. In addition, the negative relationship between abnormal cash follow from operating and financial leverage is also expected (Roychowdhury 2006).

The industry fixed effects and year fixed effects are controlled in regression and the robust standard errors have applied.

5.5 Empirical analysis

5.5.1Multicollinearity

Multicollinearity refers to the fact that the explanatory variables in the linear regression model are distorted or difficult to estimate accurately due to the accurate or highly correlated relationship.

Table 5.1: Correlation Matrix

	Fd	Fdratio	dum_Fd	Fdtop1	Fd_duality	BSIZE	BSHL	IND
Fd	**1.000**							
Fdratio	**0.955**	**1.000**						

dum_Fd	**0.612**	**0.622**	**1.000**					
Fdtop1	**0.553**	**0.529**	**0.343**	**1.000**				
Fd_duality	**0.819**	**0.777**	**0.505**	**0.688**	**1.000**			
BSIZE	**0.235**	**0.013**	**0.153**	**0.151**	**0.215**	**1.000**		
BSHL	**-0.053**	**-0.040**	**-0.009**	**-0.107**	**-0.058**	**-0.065**	**1.000**	
IND	**0.178**	**0.002**	**0.132**	**0.095**	**0.150**	**0.795**	**-0.043**	**1.000**
CEO_duality	**-0.024**	**-0.002**	**-0.022**	**-0.067**	**-0.037**	**-0.125**	**0.138**	**-0.103**
TOP1	**0.018**	**0.020**	**0.003**	**0.099**	**0.020**	**0.009**	**-0.062**	**0.043**
SOE	**0.077**	**0.051**	**0.052**	**0.083**	**0.100**	**0.140**	**-0.113**	**0.117**
MSHL	**-0.053**	**-0.043**	**-0.017**	**-0.096**	**-0.051**	**-0.047**	**0.801**	**-0.033**
ROA	**0.031**	**0.024**	**0.021**	**0.049**	**0.050**	**0.046**	**0.066**	**0.025**
LNA	**0.134**	**0.084**	**0.122**	**0.149**	**0.132**	**0.260**	**-0.025**	**0.299**
CFO	**0.038**	**0.023**	**0.040**	**0.052**	**0.045**	**0.077**	**0.010**	**0.043**
LEV	**0.004**	**-0.004**	**-0.003**	**0.012**	**-0.003**	**0.047**	**-0.047**	**0.052**

	CEO_duality	**TOP1**	**SOE**	**MSHL**	**ROA**	**LNA**	**CFO**	**LEV**
CEO_duality	**1.000**							
TOP1	**-0.066**	**1.000**						
SOE	**-0.081**	**-0.436**	**1.000**					
MSHL	**0.213**	**-0.065**	**-0.095**	**1.000**				
ROA	**-0.014**	**0.039**	**0.045**	**0.064**	**1.000**			
LNA	**-0.101**	**0.313**	**0.083**	**-0.028**	**0.144**	**1.000**		
CFO	**-0.027**	**0.034**	**0.057**	**0.009**	**0.299**	**0.072**	**1.000**	
LEV	**-0.026**	**0.054**	**0.000**	**-0.056**	**-0.177**	**0.203**	**-0.149**	**1.000**

Fd: is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders. **Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

According to the correlation matrix, there is a high correlation between Fd, Fdratio, dum_Fd, Fdtop1 and Fd_duality. The correlation coefficient is higher than 0.5, and the highest correlation coefficient is 0.955 with is the correlation between Fd and Fdratio. To test whether there is multicollinearity in the sample, this study will detect the variance inflation factor (VIF).

The variance inflation factor (VIF) is a measure of the severity of multiple (multiple) collinearity in a multiple linear regression model. It represents the ratio of the variance of the regression

coefficient estimator to the variance assuming that the independent variables are not linearly correlated. The calculation formula is: VIF =1/ (1-R^2)

The larger the VIF, the more serious the display collinearity. The empirical judgment method shows: when 0<VIF<10, there is no multicollinearity; when 10≤VIF<100, there is strong multicollinearity; when VIF≥100, there is severe multicollinearity.

Table 5.2 The variance inflation factor

Variable	VIF	1/VIF
Fd	**27.85**	**0.035913**
Fdratio	**27.04**	**0.036987**
duality_Fd	**5.19**	**0.192574**
Fdtop1	**4.32**	**0.231696**
BSIZE	**4.26**	**0.235006**
MSHL	**2.86**	**0.349263**
BSHL	**2.82**	**0.354365**
IND	**2.78**	**0.359803**
dum_Fd	**1.72**	**0.581397**
Top1	**1.54**	**0.649282**
SOE	**1.44**	**0.696672**
LNA	**1.39**	**0.717897**
ROA	**1.17**	**0.853742**
CFO	**1.13**	**0.887368**
LEV	**1.12**	**0.894863**
CEO_duality	**1.08**	**0.922174**
Mean VIF	**5.48**	

Fd: is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders. **Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

According to the table5.2, there is a strong multicollinearity between the Fd and the Fdratio. To eliminate the effect of multicollinearity on the regression results, the Fd and the Fdratio will be regressed by different models.

5.5.3 Auto-correlation

Autocorrelation refers to the correlation between the expected values of random error terms

(Gujarati,2009). When the random error term of the linear correlation model has autocorrelation, using OLS (ordinary least squares) to estimate the parameters will cause the following influences.

According to the proof process of Gauss-Markov theorem that only under the conditions of homoscedasticity and non-autocorrelation, OLS estimation has minimum variance. When the model has autocorrelation, OLS estimation is still unbiased, but it is no longer valid. It is the same as the situation when there is heteroscedasticity, indicating that there are other parameter estimation methods whose estimation error is smaller than that of OLS estimation (William, 2000).

(1) Autocorrelation does not affect the linearity and unbiasedness of the OLS estimator but makes it invalid.

(2) The coefficient estimator of the autocorrelation will have a considerable variance.

(3) The T-test of the autocorrelation coefficient is not significant.

(4) The prediction function of the model fails.

This study suing the Wooldridge test (Wooldridge, 2010) to analysis whether there is a autocorrelation exists by STATA.

Table5. 3: Wooldridge test for autocorrelation

H_0: no first-order autocorrelation	
F (1, 1134)	**= 14.300**
Prob > F	**=0.0002**

According to the result of the Wooldridge test that the p-value of F-test is 0.0002 and reject the H_0. Therefore, the model has autocorrelation, and this study will use the FGLS to do the robust test.

5.5.4 Heteroskedasticity

Homoscedasticity is to ensure that the regression parameter estimator has good statistical properties. An important assumption of the classic linear regression model: the random error term in the overall regression function meets homoscedasticity, that is, they all have the same variance.

If this assumption is not satisfied, that is, the random error term has different variances, then the linear regression model is said to have heteroscedasticity (Gujarati, 2009).

According to the assumption of the classical regression model, the ordinary least squares estimator is a linear, unbiased, and effective estimator, that is, among all unbiased estimates, the least-squares estimator has the least variance-it is an effective estimator. If other assumptions remain unchanged, the random perturbation term μ_i is allowed to have heteroscedasticity, that is, the variance of μ_i changes with the change of the observation value, which violates the Gauss-Markov assumption estimated by the least square method. If it continues to use the least-squares method to estimate the parameters, it will have the following consequences:

(1) The parameter estimator is still linear and unbiased, but not effective.

(2) The variance in the heteroscedasticity model no longer has the smallest variance.

(3) The t-test loses its effect.

(4) The predictive effect of the model is destroyed.

Table 5. 4: White's test for H_0: Homoskedasticity

			against H_a: unrestricted heteroskedasticity
			chi2(130) = 1066.63
			Prob > chi2 = 0.0000
			Cameron & Trivedi's decomposition of IM-test
Source	**chi2**	**df**	**p**
Heteroskedasticity	**1066.63**	**130**	**0**
Skewness	**61.57**	**15**	**0**
Kurtosis	**52.6**	**1**	**0**
Total	**1180.81**	**146**	**0**

According to the table 4, the p-value of the White's test is 0, and reject the H_0. Therefore, there is heteroscedasticity.

5.5.5 Random effect and fixed effect

The difference between a fixed-effect model and a random-effect model is its basic assumption,

that is, whether the variable that the individual does not change over time is related to the predicted or independent variable. The fixed-effects model considers that the variables containing the effects of individual influences are endogenous. In contrast, the random-effects model assumes that all regression variables that have the random effects of individuals are exogenous (Mundlak, 1978).

In the introduction of variables in the model, the fixed-effects model defaults that independent variables that do not change with time will not affect the dependent variable, so such variables are not allowed to appear in the model. The random-effects model believes that some Independent variables of individual characteristics that do not change with time can affect dependent variables, allowing such variables to be introduced into the model. Under the assumption that the explanatory variable is exogenous, the estimator in the fixed effects model is unbiased. Also, when an object in the panel data has only one cross-section, it will not work in the fixed-effects model, that is, samples with only one period will be ignored and cause loss. When there are enough reasons to believe that non-observation effects are irrelevant to all explanatory variables, the random-effects model is more reasonable. The ideal random-effects model assumption includes all fixed effects assumptions and assumes nothing to do with any explanatory variables in all periods.

In the introduction of variables in the model, the fixed effects model defaults that independent variables that do not change over time will not be correct. The dependent variable has an impact, so such variables are not allowed to appear in the model. The random-effects model believes that independent variables that represent certain individual characteristics but do not change with time can affect the dependent variable, allowing such variables to be introduced into the model.

This study will use the Hossman test to test whether a fixed effects model or a random effects model should be used.

Table 5.5 Regression by random effects model and fixed effects model

	(1)	(2)
VARIABLES	**RE**	**FE**
Fd	**-0.000**	**-0.000**
	(-0.617)	**(-0.623)**
dum_Fd	**0.003****	**0.003***

	(2.129)	(1.701)
Fdtop1	-0.000	-0.000
	(-0.106)	(-0.327)
duality_Fd	-0.000	-0.000
	(-0.336)	(-0.231)
BSIZE	0.001***	0.001***
	(2.953)	(2.848)
BSHL	-0.013	-0.009
	(-0.831)	(-0.610)
IND	-0.000	0.000
	(-0.193)	(0.014)
CEOD	0.001	0.001
	(0.449)	(0.685)
TOP1	-0.005	0.002
	(-1.523)	(0.600)
SOE	0.013***	0.008**
	(3.821)	(2.426)
MSHL	0.017	0.015
	(0.501)	(0.441)
ROA	0.878***	0.890***
	(108.501)	(110.255)
LNA	0.004***	0.005***
	(9.326)	(9.997)
CFO	-1.058***	-1.069***
	(-152.195)	(-154.578)
LEV	-0.002***	-0.002***
	(-6.925)	(-6.927)
Constant	-0.078***	-0.088***
	(-8.390)	(-9.259)
Observations	10,251	10,251
R-squared	0.740	0.741

Fd: is the number of financial directors. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders. **Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.6: Hausman test

	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Fd	-.0002618	2.74e-07	.0000242	-.0002615
dum_Fd	.0026016	.0032813	-.0006797	.0001373
Fdtop1	-.0004023	-.000131	-.0002713	.0000585

duality_Fd	**-.0002676**	**-.0003946**	**.000127**	**.000021**
BSIZE	**.0013533**	**.001416**	**-.0000627**	**.0000335**
BSHL	**-.0091928**	**-.0126399**	**.0034471**	**.0010606**
IND	**.0000173**	**-.0002413**	**.0002586**	**.0000399**
CEOD	**.0010686**	**.0007077**	**.000361**	**.0000832**
TOP1	**.0022312**	**-.0053663**	**.0075975**	**.0013094**
SOE	**.0081234**	**.0125425**	**-.0044191**	**.0008401**
MSHL	**.0145177**	**.0166783**	**-.0021606**	**.0013728**
ROA	**.8897376**	**.8783144**	**.0114232**	**.0010725**
LNA	**.0046961**	**.0042868**	**.0004093**	**.0001212**
CFO	**-1.06945**	**-1.05789**	**-.0115597**	**.000834**
	-.0019944	**-.0020147**	**.0000204**	**.0000155**
_cons	**-.0883224**	**-.078291**	**-.0100314**	**.0024704**

Fd: is the number of financial directors. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders. **Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(9) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B) = 250.67
Prob>chi2 = 0.0000
(V_b-V_B is not positive definite)

Table 5.6. is the Hausman test of the sample. As the result of the test, the value of the chi2(9) is 250.67, and the P-value is 0. Therefore, it rejects the null hypothesis and uses the fixed effect in the next regression.

5.5.6OLS, FGLS and WGS

OLS (ordinary least Squares) is the most basic form of regression analysis.

The basic principle is that the optimal fitting line should minimize the sum of the distances from each point to the line, that is, the sum of squares between all the observed values on the scatter diagram and the straight regression line.

Suppose that the estimates for α and β obtained from this principle are $\widehat{\alpha}$and$\widehat{\beta}$.

Then the line can be expressed as:

$$y_t = \widehat{\alpha} + \widehat{\beta} x_t \qquad (36)$$

The y_t values on the line are marked $\widehat{y_t}$. The difference between the actual value and the fitted value is marked as $\widehat{\mu_t}$, known as residual, which can be regarded as an estimate of the random error term.

According to the basic principles of OLS, the sum of squares of the distance between a line and a scatter point is minimized, which meaning, the residual sum of squares (RSS: $\sum_{t=1}^{T} \hat{\mu}_t^2$) is minimized.

$$\boldsymbol{RSS = \sum_{t=1}^{T} (y - \widehat{y_t})^2 = \sum_{t=1}^{T} (y_t - \widehat{\alpha} - \widehat{\beta} x_t)^2} \qquad \textbf{(37)}$$

According to the first-order condition of minimization, take the partial derivatives of: and set them to zero, and the results can be obtained as follows:

$$\widehat{\boldsymbol{\beta}} = \frac{\sum x_t y_t - T\bar{x}\bar{y}}{\sum x_t^2 - T\bar{x}^2} \qquad \textbf{(38)}$$

$$\widehat{\boldsymbol{\alpha}} = \bar{\boldsymbol{y}} - \widehat{\boldsymbol{\beta}}\bar{\boldsymbol{x}} \qquad \textbf{(39)}$$

GLS (generalized least square method) is a standard method to eliminate heteroscedasticity. The main idea is to add weight to the explanatory variable so that the variance of the regression equation is the same after adding the weight. Therefore, under the GLS method, we can obtain the unbiased and consistent estimator of the estimator, and conduct t-test and F-test for it under OLS.

Under linear conditions, OLS is a particular form of GLS. Specifically, GLS corrects heteroscedasticity and sequence correlation of linear model random items. GLS is equivalent to OLS in the absence of heteroskedasticity and sequence correlation.

The GLS is a generalized regression model without the assumption that the covariance and sequence are related. In this case, the GLS estimator is BLUE. If the conditional variance and

covariance matrix of the error term is known, GLS is feasible. If this matrix is unknown, in order to calculate the value of GLS estimator, we must estimate the variance, covariance matrix, and then get FGLS. In this case, the FGLS estimator is consistent and asymptotically effective.

At last, in general, the least square method treats all the data in the time series equally, but in fact, each data in the time series should have different effects on the future.

In general, recent data have a greater impact on the future than long-term data. Therefore, it is more reasonable to use the weighted method to assign a larger weight to the recent data and a smaller weight to the long-term data.

Weighted least square (WLS) method adopts the exponent weight W^{n-1} ,0<W<1, and the parameter estimation obtained after weighting should meet the following requirements:

$$S = \sum_{i=1}^{n} W^{n-1}(y_i - \widehat{y_2})^2 = min, (i = 1,2,\ldots,n) \quad (40)$$

Taking the linear model $\widehat{y} = \alpha + \beta t$as an example, its weighted residual sum of squares is:

$$S = \sum_{i=1}^{n} W^{n-1}(y_i - \alpha - \beta t)^2 \quad (41)$$

By taking the partial derivatives of α and β from the above equation, the standard equations are obtained:

$$\sum W^{n-1} y_i = \alpha \sum W^{n-1} + \beta \sum W^{n-1} t \quad (42)$$

$$\sum W^{n-1} t y_i = \alpha \sum W^{n-1} t + \beta \sum W^{n-1} t^2 \quad (43)$$

Solve α and β for the above equations and obtain the weighted least square linear model. With the weighted least square method, different values of W will result in different α and β solutions. Therefore, the value of W should be determined after analysis.

Therefore, in the next section, this study will use the OLS to run the regression and use the FGLS and WLS to do the robust test.

5.6 Regression results

5.6.1Discretionary accruals

Table 5.7 to table 5.14 are results of the regression between firm's discretionary accruals and financial director's characteristics. In table 5.7 to table 5.14, the dependent variable is firm's discretionary accruals which measured by modified Jones model, Lujianqiao model, investment matched modified Jones model and investment matched Lujianqiao model, respectively.

Table 5.7: Regression results on the relationship between discretionary accruals (Modified Jones model) and financial director's characteristics

VARIABLES	DA_MJ	DA_MJ	DA_MJ	DA_MJ	DA_MJ	DA_MJ
Fd	-0.000					0.001
	(-0.273)					(0.565)
Fdratio		-0.001				-0.009
		(-0.335)				(-0.785)
dum_Fd			0.001			0.003*
			(1.200)			(1.827)
Fdtop1				-0.000		0.001
				(-0.317)		(0.682)
Fd_duality					-0.000	-0.001
					(-0.767)	(-1.003)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.000
	(0.769)	(0.739)	(0.658)	(0.767)	(0.842)	(0.302)
BSHL	0.006	0.006	0.006	0.006	0.006	0.005
	(0.467)	(0.466)	(0.446)	(0.457)	(0.450)	(0.407)
IND	0.000	0.000	0.000	0.000	0.000	0.000
	(0.240)	(0.239)	(0.239)	(0.228)	(0.196)	(0.151)
TOP1	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	(-0.900)	(-0.897)	(-0.919)	(-0.865)	(-0.851)	(-0.884)
SOE	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.442)	(-0.438)	(-0.431)	(-0.426)	(-0.409)	(-0.354)
MSHL	-0.013	-0.013	-0.013	-0.013	-0.014	-0.013
	(-0.459)	(-0.459)	(-0.436)	(-0.456)	(-0.469)	(-0.459)
ROA	0.903***	0.903***	0.903***	0.903***	0.903***	0.903***
	(126.219)	(126.219)	(126.231)	(126.211)	(126.221)	(126.226)
LNA	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
	(10.839)	(10.842)	(10.665)	(10.833)	(10.876)	(10.683)
CFO	-1.104***	-1.104***	-1.104***	-1.104***	-1.104***	-1.104***
	(-177.952)	(-177.952)	(-177.965)	(-177.944)	(-177.946)	(-177.949)
LEV	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-5.629)	(-5.630)	(-5.586)	(-5.628)	(-5.631)	(-5.575)
Constant	-0.067***	-0.067***	-0.067***	-0.067***	-0.068***	-0.066***
	(-7.749)	(-7.755)	(-7.702)	(-7.751)	(-7.787)	(-7.333)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.756	0.756	0.756	0.756	0.756	0.756

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:**is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from

operating.

Table 5.8: Regression results on the relationship between discretionary accruals (LJQ model) and financial director's characteristics

VARIABLES	DA_Lu	DA_Lu	DA_Lu	DA_Lu	DA_Lu	DA_Lu
Fd	-0.000					0.001
	(-0.625)					(0.680)
Fdratio		-0.002				-0.011
		(-0.747)				(-0.936)
dum_Fd			0.000			0.002
			(0.358)			(1.100)
Fdtop1				-0.000		0.001
				(-0.140)		(0.779)
Fd_duality					-0.000	-0.001
					(-0.616)	(-0.793)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.000
	(1.078)	(1.001)	(0.973)	(1.007)	(1.077)	(0.430)
BSHL	0.015	0.015	0.015	0.015	0.015	0.015
	(1.072)	(1.070)	(1.067)	(1.068)	(1.059)	(1.043)
IND	0.001	0.001	0.001	0.001	0.001	0.001
	(0.717)	(0.715)	(0.729)	(0.722)	(0.690)	(0.676)
TOP1	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	(-0.871)	(-0.865)	(-0.889)	(-0.864)	(-0.840)	(-0.897)
SOE	-0.000	0.000	-0.000	-0.000	0.000	0.000
	(-0.005)	(0.002)	(-0.012)	(-0.008)	(0.013)	(0.037)
MSHL	-0.010	-0.010	-0.009	-0.009	-0.010	-0.010
	(-0.317)	(-0.317)	(-0.301)	(-0.307)	(-0.318)	(-0.316)
ROA	0.881***	0.881***	0.881***	0.881***	0.881***	0.881***
	(118.263)	(118.265)	(118.257)	(118.251)	(118.260)	(118.244)
LNA	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***
	(7.974)	(7.984)	(7.868)	(7.929)	(7.973)	(7.863)
CFO	-1.076***	-1.076***	-1.076***	-1.076***	-1.076***	-1.076***
	(-166.426)	(-166.428)	(-166.421)	(-166.417)	(-166.417)	(-166.408)
LEV	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-3.036)	(-3.038)	(-3.009)	(-3.023)	(-3.027)	(-2.999)
Constant	-0.052***	-0.052***	-0.051***	-0.052***	-0.052***	-0.050***
	(-5.736)	(-5.718)	(-5.689)	(-5.699)	(-5.736)	(-5.318)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.730	0.730	0.730	0.730	0.730	0.730

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the

percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.9: Regression results on the relationship between discretionary accruals (Investment matched Modified Jones model) and financial director's characteristics

VARIABLES	DA_MJinv	DA_MJinv	DA_MJinv	DA_MJinv	DA_MJinv	DA_MJinv
Fd	-0.002**					0.005
	(-2.517)					(1.484)
Fdratio		-0.017***				-0.069**
		(-2.876)				(-2.377)
dum_Fd			-0.002			0.005
			(-0.777)			(1.428)
Fdtop1				0.000		0.006**
				(0.332)		(2.108)
Fd_duality					-0.001	-0.003
					(-0.847)	(-1.113)
BSIZE	0.001	0.000	0.000	0.000	0.001	-0.001
	(0.731)	(0.384)	(0.421)	(0.335)	(0.492)	(-0.693)
BSHL	0.188***	0.188***	0.189***	0.188***	0.187***	0.188***
	(5.471)	(5.463)	(5.490)	(5.484)	(5.455)	(5.482)
IND	-0.004	-0.004	-0.003	-0.003	-0.004	-0.004
	(-1.290)	(-1.294)	(-1.227)	(-1.210)	(-1.283)	(-1.247)
TOP1	-0.063***	-0.063***	-0.064***	-0.064***	-0.063***	-0.065***
	(-7.588)	(-7.567)	(-7.637)	(-7.634)	(-7.567)	(-7.750)
SOE	0.029***	0.030***	0.029***	0.029***	0.029***	0.029***
	(3.807)	(3.830)	(3.747)	(3.728)	(3.794)	(3.777)
MSHL	0.032	0.032	0.034	0.035	0.034	0.033
	(0.429)	(0.432)	(0.461)	(0.475)	(0.456)	(0.441)
ROA	0.916***	0.916***	0.915***	0.915***	0.916***	0.916***
	(49.865)	(49.874)	(49.834)	(49.835)	(49.853)	(49.884)
LNA	0.020***	0.020***	0.020***	0.020***	0.020***	0.020***
	(19.340)	(19.373)	(19.174)	(19.086)	(19.201)	(19.089)
CFO	-0.880***	-0.880***	-0.880***	-0.880***	-0.880***	-0.881***
	(-55.263)	(-55.270)	(-55.238)	(-55.246)	(-55.239)	(-55.313)
LEV	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-3.590)	(-3.595)	(-3.548)	(-3.521)	(-3.535)	(-3.534)
Constant	-0.342***	-0.339***	-0.338***	-0.337***	-0.339***	-0.326***
	(-15.328)	(-15.238)	(-15.201)	(-15.109)	(-15.202)	(-14.161)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.306	0.307	0.306	0.306	0.306	0.307

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.10: Regression results on the relationship between discretionary accruals (Investment matched LJQ model) and financial director's characteristics

VARIABLES	DA_Luinv	DA_Luinv	DA_Luinv	DA_Luinv	DA_Luinv	DA_Luinv
Fd	-0.002***					0.005
	(-2.631)					(1.482)
Fdratio		-0.017***				-0.069**
		(-3.003)				(-2.389)
dum_Fd			-0.003			0.004
			(-1.038)			(1.198)
Fdtop1				0.001		0.006**
				(0.400)		(2.142)
Fd_duality					-0.001	-0.003
					(-0.788)	(-1.039)
BSIZE	0.001	0.000	0.001	0.000	0.001	-0.001
	(0.808)	(0.446)	(0.499)	(0.388)	(0.544)	(-0.651)
BSHL	0.196***	0.196***	0.197***	0.197***	0.196***	0.197***
	(5.698)	(5.690)	(5.721)	(5.713)	(5.683)	(5.720)
IND	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	(-1.113)	(-1.118)	(-1.046)	(-1.027)	(-1.100)	(-1.055)
TOP1	-0.063***	-0.063***	-0.064***	-0.064***	-0.063***	-0.065***
	(-7.517)	(-7.495)	(-7.566)	(-7.573)	(-7.503)	(-7.695)
SOE	0.030***	0.030***	0.030***	0.030***	0.030***	0.030***
	(3.899)	(3.923)	(3.833)	(3.813)	(3.880)	(3.852)
MSHL	0.036	0.036	0.038	0.039	0.038	0.037
	(0.478)	(0.481)	(0.508)	(0.526)	(0.508)	(0.490)
ROA	0.898***	0.899***	0.898***	0.898***	0.899***	0.899***
	(48.722)	(48.732)	(48.688)	(48.691)	(48.708)	(48.735)
LNA	0.019***	0.019***	0.019***	0.019***	0.019***	0.019***
	(18.520)	(18.556)	(18.376)	(18.253)	(18.368)	(18.282)
CFO	-0.856***	-0.856***	-0.856***	-0.856***	-0.856***	-0.857***
	(-53.522)	(-53.529)	(-53.495)	(-53.504)	(-53.497)	(-53.571)
LEV	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-2.774)	(-2.779)	(-2.737)	(-2.701)	(-2.715)	(-2.723)
Constant	-0.329***	-0.326***	-0.326***	-0.324***	-0.326***	-0.313***
	(-14.701)	(-14.604)	(-14.574)	(-14.469)	(-14.562)	(-13.542)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.296	0.296	0.296	0.296	0.296	0.296

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

In table 5.7, the dependent variable is the discretionary accruals which measured by modified Jones model. The result of regression has shown that the impact of the number of financial directors on the firm's discretionary accruals is negative but not significant. Moreover, the influence of financial director ratio, the number of the financial director is working for the top 10 shareholders or the largest shareholder on discretionary accruals is also negative but not significant. This result has a point that there is no significant relationship between the firm's discretionary accruals and the director's financial background.

In table 5.8, the dependent variable is the discretionary accruals which measured by Lujiaoqiao model, and this study got the same result with table 5.7. The influence of each main variable on the firm's discretionary accruals is negative but not significant. This result has shown the same relationship between the firm's discretionary accruals and the director's financial background of table 5.7.

However, this study find a different result when this study use revised models to measure discretionary accruals in table 5.9 and table 5.10. In table 5.9, the dependent variable is measured by investment matched modified Jones model. The result has shown that the influence of the number of financial directors on the firm's discretionary accruals is negative and significant at 5 per cent level. The coefficient is -0.002 and the t-test value is -2.517. Moreover, the influence of the ratio of financial directors on the firm's discretionary accruals is negative significant at 1 per cent level. The coefficient is -0.017 and the t-test value is -2.876. However, the financial

director's duality has no impact on the firm's discretionary accruals.

In table 5.10, the dependent variable is measured by investment matched Lujianqiao model, and the result of table 5.10 is as same as table 5.9. The impact of the number of financial directors on firm's discretionary accruals is negative and significant at 1 per cent level, and the impact of the ratio of financial directors on firm's discretionary accruals is negative and significant at 1 per cent level.

In conclusion, from table 5.7 to table 5.10, the result point that firm's discretionary accruals will be affected by the number of financial director setting on board. If there are more financial directors setting on board, the firm tends to down their discretionary accruals. Moreover, the ratio of financial directors setting on board also could effect on firm's discretionary accruals. The high percentage of the financial director in the board will let firms to downward their discretionary accruals.

However, based on above results, this study cannot confirm that the negative significant impact is because the discretionary accruals have been limited by financial directors, or financial directors help firm to downward manipulate earning as some special purpose like tax avoidance.

Therefore, this study use the absolute value of discretionary accruals to replace the dependent variables. Thus, if the influence of the financial director's characteristics on the absolute value of discretionary accruals was negative, it is meaning the firm's discretionary accruals has been limited by financial directors. In contrast, if the influence of financial director's characteristics on the absolute value of discretionary

accruals was positive, it is meaning financial director has help firm to manipulate earnings.

In table 5.11 to table 5.13, the dependent variable is the absolute value of firm's discretionary accruals which measured by modified Jones model, Lujianqiao model, investment matched modified Jones model and investment matched Lujianqiao model, respectively.

Table5.11: Regression results on the relationship between absolute value of discretionary accruals (Modified Jones model) and financial director's characteristics

VARIABLES	Ab_MJ	Ab_MJ	Ab_MJ	Ab_MJ	Ab_MJ	Ab_MJ
Fd	-0.000					0.001
	(-0.687)					(0.504)
Fdratio		-0.003				-0.007
		(-0.841)				(-0.446)
dum_Fd			-0.003*			-0.003
			(-1.779)			(-1.551)
Fdtop1				0.000		0.001
				(0.062)		(0.523)
Fd_duality					-0.000	-0.000
					(-0.230)	(-0.264)
BSIZE	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-3.083)	(-3.212)	(-3.094)	(-3.204)	(-3.147)	(-2.834)
BSHL	0.058***	0.058***	0.059***	0.059***	0.058***	0.060***
	(3.008)	(3.005)	(3.042)	(3.010)	(3.003)	(3.059)
IND	0.001	0.001	0.001	0.001	0.001	0.001
	(0.501)	(0.498)	(0.527)	(0.520)	(0.501)	(0.558)
TOP1	-0.032***	-0.032***	-0.032***	-0.032***	-0.032***	-0.032***
	(-6.766)	(-6.758)	(-6.765)	(-6.746)	(-6.750)	(-6.778)
SOE	0.004	0.004	0.003	0.003	0.004	0.003
	(0.815)	(0.822)	(0.778)	(0.796)	(0.812)	(0.742)
MSHL	-0.067	-0.067	-0.068	-0.067	-0.067	-0.068
	(-1.600)	(-1.600)	(-1.614)	(-1.588)	(-1.592)	(-1.609)
ROA	-0.076***	-0.076***	-0.076***	-0.076***	-0.076***	-0.076***
	(-7.311)	(-7.309)	(-7.334)	(-7.313)	(-7.310)	(-7.337)
LNA	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(-8.997)	(-8.980)	(-8.842)	(-9.044)	(-9.024)	(-8.859)
CFO	-0.127***	-0.127***	-0.127***	-0.127***	-0.127***	-0.127***
	(-14.123)	(-14.124)	(-14.109)	(-14.122)	(-14.120)	(-14.109)
LEV	0.000	0.000	0.000	0.000	0.000	0.000
	(1.183)	(1.180)	(1.147)	(1.201)	(1.198)	(1.160)
Constant	0.209***	0.209***	0.208***	0.209***	0.209***	0.210***
	(16.526)	(16.600)	(16.545)	(16.571)	(16.546)	(16.128)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.094	0.094	0.094	0.094	0.094	0.094

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.12: Regression results on the relationship between absolute value of discretionary accruals (LJQ model) and financial director's characteristics

VARIABLES	Ab_Lu	Ab_Lu	Ab_Lu	Ab_Lu	Ab_Lu	Ab_Lu
Fd	-0.000					0.001
	(-0.586)					(0.462)
Fdratio		-0.002				-0.006
		(-0.721)				(-0.391)
dum_Fd			-0.002			-0.003
			(-1.531)			(-1.335)
Fdtop1				-0.000		0.001
				(-0.060)		(0.385)
Fd_duality					-0.000	-0.000
					(-0.290)	(-0.249)
BSIZE	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-2.976)	(-3.090)	(-2.988)	(-3.070)	(-3.017)	(-2.705)
BSHL	0.057***	0.057***	0.058***	0.057***	0.057***	0.058***
	(2.978)	(2.976)	(3.007)	(2.975)	(2.972)	(3.016)
IND	0.001	0.001	0.001	0.001	0.001	0.001
	(0.510)	(0.508)	(0.533)	(0.520)	(0.504)	(0.551)
TOP1	-0.031***	-0.031***	-0.031***	-0.031***	-0.031***	-0.032***
	(-6.686)	(-6.679)	(-6.685)	(-6.651)	(-6.664)	(-6.673)
SOE	0.003	0.003	0.003	0.003	0.003	0.003
	(0.720)	(0.726)	(0.688)	(0.711)	(0.722)	(0.666)
MSHL	-0.064	-0.064	-0.064	-0.064	-0.064	-0.064
	(-1.535)	(-1.536)	(-1.548)	(-1.526)	(-1.531)	(-1.543)
ROA	-0.090***	-0.090***	-0.090***	-0.090***	-0.090***	-0.090***
	(-8.730)	(-8.729)	(-8.750)	(-8.730)	(-8.727)	(-8.749)
LNA	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(-9.289)	(-9.274)	(-9.151)	(-9.317)	(-9.303)	(-9.155)
CFO	-0.105***	-0.105***	-0.105***	-0.105***	-0.105***	-0.105***
	(-11.721)	(-11.722)	(-11.708)	(-11.719)	(-11.717)	(-11.707)
LEV	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**
	(2.099)	(2.097)	(2.069)	(2.114)	(2.112)	(2.079)
Constant	0.207***	0.208***	0.207***	0.208***	0.207***	0.209***
	(16.560)	(16.629)	(16.581)	(16.588)	(16.568)	(16.135)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.091	0.091	0.091	0.091	0.091	0.091

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.13: Regression results on the relationship between absolute value of discretionary accruals (Investment matched MJ model) and financial director's characteristics

VARIABLES	Ab_MJinv	Ab_MJinv	Ab_MJinv	Ab_MJinv	Ab_MJinv	Ab_MJinv
Fd	-0.001**					0.001
	(-2.449)					(0.385)
Fdratio		-0.014***				-0.029
		(-2.645)				(-1.070)
dum_Fd			-0.006**			-0.002
			(-2.194)			(-0.638)
Fdtop1				0.001		0.003
				(0.513)		(1.258)
Fd_duality					-0.000	0.000
					(-0.152)	(0.066)
BSIZE	-0.002**	-0.003***	-0.002**	-0.003***	-0.003***	-0.003**
	(-2.258)	(-2.627)	(-2.491)	(-2.677)	(-2.587)	(-2.551)
BSHL	0.166***	0.166***	0.167***	0.167***	0.166***	0.169***
	(5.163)	(5.155)	(5.208)	(5.182)	(5.163)	(5.242)
IND	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(-0.132)	(-0.132)	(-0.062)	(-0.045)	(-0.084)	(0.005)
TOP1	-0.073***	-0.073***	-0.073***	-0.074***	-0.073***	-0.075***
	(-9.306)	(-9.289)	(-9.340)	(-9.360)	(-9.329)	(-9.463)
SOE	0.023***	0.023***	0.022***	0.022***	0.023***	0.022***
	(3.172)	(3.190)	(3.095)	(3.084)	(3.127)	(3.038)
MSHL	0.043	0.043	0.044	0.046	0.046	0.043
	(0.618)	(0.623)	(0.629)	(0.664)	(0.658)	(0.626)
ROA	0.164***	0.164***	0.163***	0.164***	0.164***	0.163***
	(9.531)	(9.536)	(9.497)	(9.513)	(9.522)	(9.495)
LNA	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***
	(3.339)	(3.362)	(3.372)	(3.098)	(3.160)	(3.269)
CFO	-0.330***	-0.330***	-0.329***	-0.330***	-0.330***	-0.330***
	(-22.109)	(-22.112)	(-22.086)	(-22.103)	(-22.098)	(-22.127)
LEV	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-3.168)	(-3.170)	(-3.171)	(-3.099)	(-3.108)	(-3.173)
Constant	0.084***	0.087***	0.086***	0.089***	0.088***	0.092***
	(4.037)	(4.175)	(4.142)	(4.251)	(4.197)	(4.280)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.075	0.075	0.075	0.075	0.075	0.076

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.14: Regression results on the relationship between absolute value of discretionary accruals (Investment matched LJQ model) and financial director's characteristics

VARIABLES	Ab_Luinv	Ab_Luinv	Ab_Luinv	Ab_Luinv	Ab_Luinv	Ab_Luinv
Fd	-0.001**					0.001
	(-2.491)					(0.319)
Fdratio		-0.014***				-0.028
		(-2.677)				(-1.049)
dum_Fd			-0.006**			-0.002
			(-2.133)			(-0.539)
Fdtop1				0.001		0.003
				(0.547)		(1.193)
Fd_duality					-0.000	0.000
					(-0.076)	(0.197)
BSIZE	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.003**
	(-2.090)	(-2.463)	(-2.331)	(-2.518)	(-2.436)	(-2.407)
BSHL	0.167***	0.167***	0.168***	0.168***	0.167***	0.170***
	(5.225)	(5.217)	(5.269)	(5.245)	(5.226)	(5.303)
IND	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(-0.107)	(-0.107)	(-0.037)	(-0.018)	(-0.054)	(0.035)
TOP1	-0.072***	-0.071***	-0.072***	-0.073***	-0.072***	-0.073***
	(-9.201)	(-9.184)	(-9.237)	(-9.260)	(-9.230)	(-9.361)
SOE	0.023***	0.023***	0.022***	0.022***	0.022***	0.022***
	(3.176)	(3.195)	(3.099)	(3.086)	(3.127)	(3.042)
MSHL	0.045	0.045	0.046	0.048	0.048	0.046
	(0.648)	(0.653)	(0.660)	(0.695)	(0.690)	(0.659)
ROA	0.154***	0.155***	0.154***	0.154***	0.154***	0.154***
	(9.032)	(9.037)	(8.999)	(9.014)	(9.022)	(8.997)
LNA	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***
	(2.945)	(2.968)	(2.969)	(2.699)	(2.757)	(2.865)
CFO	-0.313***	-0.313***	-0.313***	-0.313***	-0.313***	-0.313***
	(-21.097)	(-21.099)	(-21.073)	(-21.091)	(-21.086)	(-21.117)
LEV	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-2.686)	(-2.688)	(-2.687)	(-2.615)	(-2.624)	(-2.691)
Constant	0.088***	0.090***	0.090***	0.092***	0.091***	0.096***
	(4.226)	(4.366)	(4.336)	(4.445)	(4.395)	(4.461)
Observations	12,573	12,573	12,573	12,573	12,573	12,573
Adj. R-squared	0.071	0.072	0.071	0.071	0.071	0.072

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

In table 5.11, the dependent variable is the absolute value of discretionary accruals measured by modified Jones model. The result of regression has shown that the impact of whether there is a financial director setting on the board on the firm's discretionary accruals is negative and significant at 4.11 per cent level. However, the firm's discretionary accruals have nothing to do with the number of the financial director or the ratio of financial director setting in the board. Moreover, the firm's discretionary actuals are also having no relationship with the number of shareholder financial directors.

In table 5.12, the dependent variable is the absolute value of discretionary accruals which is measured by the Lu jianqiao model. The regression result has shown that all five financial director's characteristics have no impact on the firm's discretionary accruals.

In table 5.13, when this study use the absolute value of discretionary accruals which is measured by investment matched modified Jones model as the dependent variable, the regression has shown the different result with the above tables. The impact of the number of financial directors setting on the board is negatively significant at 5 per cent level. The coefficient is -0.001 and the t-test value is -2.449. The impact of the ratio of financial directors setting on the board is negatively significant at 1 per cent level. The coefficient is -0.014 and the t-test value is -2.645. Moreover, the impact of the dummy variable whether there is a financial director setting on the board is negatively significant at 5 per cent level. The coefficient is -0.006 and the t-test value

is -2.194. However, the variable that the number of financial directors who are working for shareholder has no impact on the firm's discretionary accruals.

As some as the result of table 5.13, in table 5.14, this study use the absolute value of discretionary accruals which is measured by investment matched Lujianqiao model as the dependent variable. The impact of the number of financial directors setting on the board is negatively significant at 5 per cent level. The coefficient is -0.001 and the t-test value is -2.491. The impact of the ratio of financial directors setting on the board is negatively significant at 1 per cent level. The coefficient is -0.014 and the t-test value is -2.677. Moreover, the impact of the dummy variable whether there is a financial director setting on the board is negatively significant at 5 per cent level. The coefficient is -0.006 and the t-test value is -2.133.

Based on the above results from table 5.11 to table 5.14, this study can point that if there is a financial director has set on the board, the firm's discretionary accruals will be limited. As the number or ratio of financial directors setting on the board increasing, the digress of the firm's discretionary accruals will be decreasing more effect. However, the duality situation of the financial directors is no impact on the firm's discretionary accruals, no matter the financial director is working for the top 10 shareholders or the largest shareholder.

In conclusion, the financial directors will prevent the firm's earnings manipulation and will cause the decreasing of the firm's discretionary accruals.

5.6.2 Real activity earnings management

From table 5.7 to table 5.14, this study can find that the firm's discretionary accruals will be limited by financial directors. However, this study still cannot point that the reason is that the supervision of the financial director on executives or the firm has chosen the real activity earnings management will financial director’s help. As the real activity earnings management is concealing than discretionary accruals earnings management, so the financial director may help the firm to manipulate the earnings through real activity and abandon the discretionary accruals method. Thus, it will cause the decreasing of the discretionary accruals.

Therefore, in the next section, this study use abnormal real earnings as the dependent variable to test whether the financial director has helped the firm to manipulate earnings through earnings or not. From Table 5.15 to table 5.22 are results of the regression between firm’s abnormal real earnings management and financial director’s characteristics. In table 5.15 to table 5.18, the dependent variable is the abnormal cash flow from operating, the abnormal cost of production, the abnormal discretionary expenditure and the abnormal real earnings, respectively. As same as discretionary accruals, from table 5.19 to table 5.22, the dependent variable is the absolute value of the abnormal cash flow from operating, the abnormal cost of production, the abnormal discretionary expenditure and the abnormal real earnings, respectively.

Table 5.15: Regression results on the relationship between abnormal cash flow from operating and financial director's characteristics

VARIABLES	Real_CFO	Real_CFO	Real_CFO	Real_CFO	Real_CFO	Real_CFO
Fd	0.000					0.001
	(0.291)					(0.938)
Fdratio		0.000				-0.005
		(0.155)				(-0.471)
dum_Fd			0.000			0.000
			(0.082)			(0.030)
Fdtop1				-0.002***		-0.003***
				(-3.422)		(-3.413)
Fd_duality					-0.001*	0.001
					(-1.905)	(1.089)
BSIZE	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.620)	(-0.585)	(-0.588)	(-0.220)	(-0.299)	(-0.726)
BSHL	-0.003	-0.003	-0.003	-0.004	-0.003	-0.005
	(-0.212)	(-0.213)	(-0.215)	(-0.333)	(-0.261)	(-0.384)
IND	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.044)	(-0.047)	(-0.051)	(-0.242)	(-0.172)	(-0.219)
TOP1	-0.015***	-0.015***	-0.015***	-0.014***	-0.014***	-0.013***
	(-5.190)	(-5.187)	(-5.185)	(-4.760)	(-5.033)	(-4.599)
SOE	-0.011***	-0.011***	-0.011***	-0.010***	-0.011***	-0.010***
	(-4.124)	(-4.122)	(-4.118)	(-3.898)	(-4.024)	(-3.827)
MSHL	-0.014	-0.014	-0.014	-0.015	-0.015	-0.013
	(-0.508)	(-0.511)	(-0.512)	(-0.537)	(-0.549)	(-0.469)
ROA	-0.058***	-0.058***	-0.058***	-0.058***	-0.058***	-0.058***
	(-9.448)	(-9.448)	(-9.446)	(-9.406)	(-9.424)	(-9.394)
LNA	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(-2.508)	(-2.498)	(-2.488)	(-2.177)	(-2.325)	(-2.246)
CFO	1.054***	1.054***	1.054***	1.054***	1.054***	1.054***
	(197.233)	(197.233)	(197.223)	(197.347)	(197.270)	(197.364)
LEV	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-2.755)	(-2.759)	(-2.760)	(-2.815)	(-2.782)	(-2.778)
Constant	-0.012	-0.012	-0.012	-0.014*	-0.013*	-0.012
	(-1.572)	(-1.594)	(-1.593)	(-1.859)	(-1.743)	(-1.581)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.775	0.775	0.775	0.775	0.775	0.775

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.16: Regression results on the relationship between abnormal cost of production and financial director's characteristics

VARIABLES	Real_Pord	Real_Pord	Real_Pord	Real_Pord	Real_Pord	Real_Pord
Fd	0.002**					0.001
	(2.564)					(0.348)
Fdratio		0.021***				0.030
		(2.619)				(0.769)
dum_Fd			0.003			-0.005
			(0.884)			(-0.955)
Fdtop1				-0.001		-0.002
				(-0.760)		(-0.498)
Fd_duality					-0.001	-0.005
					(-0.572)	(-1.289)
BSIZE	0.000	0.001	0.001	0.001	0.001	0.001
	(0.313)	(0.677)	(0.631)	(0.765)	(0.765)	(0.821)
BSHL	0.100**	0.100**	0.099**	0.098*	0.099**	0.097*
	(1.987)	(1.993)	(1.963)	(1.949)	(1.961)	(1.922)
IND	-0.009**	-0.009**	-0.009**	-0.009**	-0.009**	-0.010**
	(-2.365)	(-2.368)	(-2.429)	(-2.462)	(-2.455)	(-2.517)
TOP1	-0.008	-0.008	-0.007	-0.006	-0.007	-0.005
	(-0.692)	(-0.705)	(-0.640)	(-0.536)	(-0.584)	(-0.456)
SOE	0.004	0.004	0.005	0.005	0.005	0.005
	(0.385)	(0.369)	(0.444)	(0.478)	(0.458)	(0.481)
MSHL	0.027	0.026	0.024	0.021	0.021	0.023
	(0.245)	(0.238)	(0.216)	(0.195)	(0.190)	(0.207)
ROA	-0.594***	-0.594***	-0.593***	-0.593***	-0.593***	-0.593***
	(-23.972)	(-23.977)	(-23.946)	(-23.945)	(-23.948)	(-23.955)
LNA	0.025***	0.025***	0.025***	0.025***	0.025***	0.025***
	(17.376)	(17.361)	(17.429)	(17.613)	(17.601)	(17.506)
CFO	-0.636***	-0.636***	-0.636***	-0.636***	-0.636***	-0.635***
	(-29.482)	(-29.481)	(-29.483)	(-29.469)	(-29.471)	(-29.442)
LEV	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***
	(10.403)	(10.403)	(10.362)	(10.328)	(10.334)	(10.398)
Constant	-0.431***	-0.435***	-0.435***	-0.438***	-0.438***	-0.441***
	(-14.232)	(-14.403)	(-14.406)	(-14.463)	(-14.447)	(-14.077)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.222	0.222	0.221	0.221	0.221	0.222

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.17: Regression results on the relationship between abnormal discretionary expenditure and financial director's characteristics

VARIABLES	Real_Disexp	Real_Disexp	Real_Disexp	Real_Disexp	Real_Disexp	Real_Disexp
Fd	-0.000					-0.001
	(-0.266)					(-0.580)
Fdratio		-0.000				0.029*
		(-0.083)				(1.702)
dum_Fd			-0.005***			-0.007***
			(-2.743)			(-3.528)
Fdtop1				-0.002***		-0.001
				(-2.926)		(-0.428)
Fd_duality					-0.002***	-0.003**
					(-3.170)	(-1.994)
BSIZE	0.001	0.000	0.001	0.001	0.001	0.001*
	(0.800)	(0.770)	(0.943)	(1.075)	(1.226)	(1.757)
BSHL	-0.006	-0.006	-0.005	-0.008	-0.007	-0.006
	(-0.253)	(-0.252)	(-0.212)	(-0.354)	(-0.331)	(-0.278)
IND	0.000	0.000	0.001	0.000	0.000	0.000
	(0.291)	(0.295)	(0.316)	(0.132)	(0.094)	(0.127)
TOP1	-0.045***	-0.045***	-0.044***	-0.043***	-0.043***	-0.043***
	(-8.980)	(-8.984)	(-8.953)	(-8.598)	(-8.740)	(-8.643)
SOE	-0.015***	-0.015***	-0.015***	-0.014***	-0.014***	-0.015***
	(-3.268)	(-3.270)	(-3.313)	(-3.083)	(-3.119)	(-3.229)
MSHL	0.147***	0.147***	0.145***	0.146***	0.145***	0.143***
	(3.087)	(3.091)	(3.045)	(3.073)	(3.033)	(3.003)
ROA	0.078***	0.078***	0.078***	0.079***	0.079***	0.078***
	(7.248)	(7.247)	(7.218)	(7.287)	(7.288)	(7.228)
LNA	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***
	(10.041)	(10.025)	(10.283)	(10.275)	(10.285)	(10.431)
CFO	0.089***	0.089***	0.090***	0.090***	0.090***	0.090***
	(9.509)	(9.509)	(9.537)	(9.535)	(9.535)	(9.602)
LEV	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-1.160)	(-1.156)	(-1.232)	(-1.197)	(-1.185)	(-1.204)
Constant	-0.132***	-0.132***	-0.133***	-0.135***	-0.135***	-0.140***
	(-9.996)	(-10.002)	(-10.098)	(-10.203)	(-10.227)	(-10.249)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.039	0.039	0.040	0.040	0.040	0.041

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.18: Regression results on the relationship between abnormal real earnings and financial director's characteristics

VARIABLES	Real_EM	Real_EM	Real_EM	Real_EM	Real_EM	Real_EM
Fd	0.002*					0.001
	(1.833)					(0.256)
Fdratio		0.018*				0.053
		(1.923)				(1.157)
dum_Fd			-0.002			-0.012**
			(-0.408)			(-2.080)
Fdtop1				-0.006***		-0.005
				(-2.577)		(-1.097)
Fd_duality					-0.005**	-0.007*
					(-2.333)	(-1.829)
BSIZE	0.001	0.001	0.001	0.002	0.002	0.002
	(0.413)	(0.675)	(0.708)	(0.952)	(1.018)	(1.179)
BSHL	0.088	0.088	0.088	0.082	0.084	0.082
	(1.492)	(1.497)	(1.491)	(1.394)	(1.426)	(1.394)
IND	-0.008*	-0.008*	-0.008*	-0.009*	-0.009*	-0.009**
	(-1.770)	(-1.772)	(-1.810)	(-1.955)	(-1.958)	(-2.005)
TOP1	-0.067***	-0.067***	-0.066***	-0.062***	-0.064***	-0.061***
	(-5.009)	(-5.019)	(-4.957)	(-4.636)	(-4.782)	(-4.572)
SOE	-0.027**	-0.027**	-0.027**	-0.025**	-0.025**	-0.025**
	(-2.171)	(-2.184)	(-2.144)	(-1.972)	(-2.025)	(-2.014)
MSHL	0.164	0.163	0.159	0.157	0.154	0.156
	(1.279)	(1.274)	(1.240)	(1.229)	(1.203)	(1.219)
ROA	-0.565***	-0.565***	-0.565***	-0.564***	-0.564***	-0.565***
	(-19.508)	(-19.512)	(-19.502)	(-19.468)	(-19.473)	(-19.503)
LNA	0.029***	0.029***	0.030***	0.030***	0.030***	0.030***
	(17.673)	(17.657)	(17.806)	(18.024)	(17.997)	(17.990)
CFO	0.491***	0.491***	0.491***	0.491***	0.491***	0.493***
	(19.443)	(19.445)	(19.443)	(19.465)	(19.460)	(19.532)
LEV	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	(7.902)	(7.903)	(7.843)	(7.822)	(7.837)	(7.886)
Constant	-0.560***	-0.564***	-0.565***	-0.572***	-0.571***	-0.578***
	(-15.817)	(-15.952)	(-15.990)	(-16.142)	(-16.124)	(-15.792)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.109	0.109	0.109	0.110	0.110	0.111

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

In table 5.15, the dependent variable is abnormal cash flow from operating. The result has shown that the abnormal cash flow from operating is related negative with the financial director's duality characteristics. The impact of the number of the financial director working for shareholders on abnormal cash flow from operating is negatively significant at 10 per cent level, the coefficient is -0.001 and the t-test value is -1.905. If the financial director is working for the largest shareholder, the impact on abnormal cash flow from operating is negatively significant at 1 per cent level, the coefficient is -0.002 and the t-test value is -3.422. That meaning if financial directors working for shareholders, they tend to help the firm to reduce the abnormal cash flow from operating.

In table 5.16, the dependent variable is abnormal cost of production. The result has shown that the abnormal cost of production is positively related to the number and ratio of financial directors setting on the board. the impact of the number of financial director on the abnormal cost of production is positively significant at 5 per cent level, the coefficient is 0.002 and the t-test value is 2.564. Moreover, the impact of the ratio of financial directors setting on the board on the abnormal cost of production is positively significant at 1 per cent level, the coefficient is 0.021 and the t-test value is 2.619. It has a point that as more financial directors setting on the board, firms tend to increase the abnormal cost of production.

In table 5.17, the dependent variable is abnormal discretionary expenditure. The result has point that the abnormal discretionary expenditure is negatively related to the

financial director's characteristics. If there is a financial director setting on the board, the abnormal discretionary expenditure will significant decreasing at 1 per cent level, the coefficient is -0.005 and the t-test value is -2.473. Moreover, the impact of the number of the financial director working for shareholders on abnormal discretionary expenditure is negatively significant at 1 per cent level, the coefficient is -0.002 and the t-test value is -3.170. If the financial director is working for the largest shareholder, the impact on abnormal discretionary expenditure is negatively significant at 1 per cent level, the coefficient is -0.002 and the t-test value is -2.926.

In table 5.18, the dependent variable is abnormal real earnings. The table 5.18 has shown the relationship between the firm's abnormal real earnings management and the financial directors' characteristics. The impact of the number of financial directors on abnormal real earnings is positively significant at the 10 per cent level, and the coefficient is 0.002, the t-test value is 1.833. The impact of the ratio of financial directors on abnormal real earnings is positively significant at 10 per cent level, and the coefficient is 0.018, the t-test value is 1.923. Thus, the abnormal real earnings will positively relate to the number and ratio of financial director setting on the board. In the other hand, the impact of the number of financial directors working for shareholders on abnormal real earnings is negatively significant at 5 per cent level, and the coefficient is -0.005, the t-test value is -2.333. The impact of the number of financial directors working for the largest shareholder on abnormal real earnings is negatively significant at 1 per cent level, and the coefficient is -0.006, the t-test value is

-2.577.

Based on table 5.15 to table 5.18, the firm's abnormal real earnings management will be impacted by the financial director's characteristics. The abnormal real earnings will be positively related to the number and ratio of financial director setting on the board, more financial directors setting on the board, more abnormal cost of production increase. However, the abnormal real earning will be negatively related to the number of financial directors working for shareholders, more financial directors working for shareholders, more abnormal cash flow from operating and abnormal discretionary expenditure be reduced.

Table 5.19: Regression results on the relationship between the absolute value of abnormal cash flow from operating and financial director's characteristics

VARIABLES	Ab_CFO	Ab_CFO	Ab_CFO	Ab_CFO	Ab_CFO	Ab_CFO
Fd	-0.000					0.001
	(-0.952)					(0.908)
Fdratio		-0.003				-0.017
		(-1.268)				(-1.244)
dum_Fd			-0.002*			-0.002
			(-1.868)			(-1.268)
Fdtop1				0.000		-0.001
				(0.384)		(-0.853)
Fd_duality					0.001	0.002*
					(0.986)	(1.904)
BSIZE	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001
	(-0.376)	(-0.512)	(-0.398)	(-0.556)	(-0.657)	(-1.192)
BSHL	0.053***	0.053***	0.053***	0.053***	0.053***	0.054***
	(2.992)	(2.988)	(3.023)	(3.008)	(3.020)	(3.038)
IND	0.000	0.000	0.000	0.000	0.000	0.001
	(0.284)	(0.279)	(0.318)	(0.326)	(0.368)	(0.450)
TOP1	-0.009**	-0.009**	-0.009**	-0.010**	-0.010**	-0.010**
	(-2.353)	(-2.339)	(-2.352)	(-2.406)	(-2.443)	(-2.364)
SOE	0.009**	0.009**	0.009**	0.009**	0.009**	0.009**
	(2.374)	(2.387)	(2.331)	(2.329)	(2.308)	(2.308)
MSHL	-0.055	-0.055	-0.056	-0.055	-0.054	-0.054
	(-1.445)	(-1.447)	(-1.461)	(-1.426)	(-1.410)	(-1.404)
ROA	0.154***	0.154***	0.154***	0.154***	0.154***	0.154***
	(17.725)	(17.729)	(17.702)	(17.714)	(17.708)	(17.692)
LNA	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-6.757)	(-6.728)	(-6.618)	(-6.855)	(-6.907)	(-6.671)
CFO	0.019**	0.019**	0.019**	0.019**	0.019**	0.019**
	(2.546)	(2.545)	(2.563)	(2.543)	(2.539)	(2.542)
LEV	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(5.826)	(5.820)	(5.796)	(5.856)	(5.861)	(5.780)
Constant	0.128***	0.128***	0.128***	0.129***	0.129***	0.132***
	(12.053)	(12.128)	(12.077)	(12.144)	(12.192)	(12.050)
R-squared	0.067	0.067	0.067	0.067	0.067	0.068
Adj. R-squared	0.065	0.065	0.065	0.065	0.065	0.065

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.20: Regression results on the relationship between the absolute value of abnormal cost of production and financial director's characteristics

VARIABLES	Ab_prod	Ab_prod	Ab_prod	Ab_prod	Ab_prod	Ab_prod
Fd	0.001**					0.002
	(2.142)					(0.670)
Fdratio		0.012**				0.002
		(2.020)				(0.068)
dum_Fd			-0.000			-0.007*
			(-0.173)			(-1.764)
Fdtop1				0.001		-0.000
				(0.917)		(-0.139)
Fd_duality					0.001	-0.000
					(1.177)	(-0.011)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.000
	(0.048)	(0.351)	(0.370)	(0.261)	(0.184)	(0.044)
BSHL	0.035	0.035	0.035	0.036	0.036	0.036
	(0.905)	(0.910)	(0.899)	(0.928)	(0.926)	(0.934)
IND	-0.006**	-0.006**	-0.006**	-0.006**	-0.006**	-0.006**
	(-2.169)	(-2.176)	(-2.217)	(-2.163)	(-2.139)	(-2.131)
TOP1	0.005	0.005	0.005	0.005	0.005	0.005
	(0.572)	(0.566)	(0.629)	(0.517)	(0.539)	(0.592)
SOE	0.035***	0.035***	0.035***	0.035***	0.035***	0.035***
	(4.313)	(4.302)	(4.348)	(4.284)	(4.290)	(4.256)
MSHL	0.050	0.049	0.046	0.047	0.049	0.048
	(0.596)	(0.587)	(0.555)	(0.565)	(0.580)	(0.579)
ROA	0.064***	0.064***	0.064***	0.064***	0.064***	0.064***
	(3.383)	(3.380)	(3.389)	(3.378)	(3.376)	(3.355)
LNA	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-3.626)	(-3.621)	(-3.436)	(-3.541)	(-3.560)	(-3.464)
CFO	-0.191***	-0.191***	-0.191***	-0.191***	-0.191***	-0.191***
	(-11.578)	(-11.577)	(-11.575)	(-11.585)	(-11.586)	(-11.552)
LEV	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***
	(9.591)	(9.586)	(9.530)	(9.552)	(9.550)	(9.556)
Constant	0.237***	0.234***	0.233***	0.235***	0.235***	0.236***
	(10.219)	(10.126)	(10.078)	(10.131)	(10.153)	(9.864)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.212	0.212	0.212	0.212	0.212	0.212

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.21: Regression results on the relationship between the absolute value of abnormal discretionary expenditure and financial director's characteristics

VARIABLES	Ab_Disexp	Ab_Disexp	Ab_Disexp	Ab_Disexp	Ab_Disexp	Ab_Disexp
Fd	0.000					-0.002
	(1.358)					(-1.499)
Fdratio		0.004*				0.021
		(1.657)				(1.620)
dum_Fd			0.000			-0.002
			(0.360)			(-0.960)
Fdtop1				0.003***		0.005***
				(4.024)		(3.654)
Fd_duality					0.001**	-0.002*
					(2.450)	(-1.656)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.001
	(0.757)	(0.955)	(0.937)	(0.532)	(0.593)	(1.510)
BSHL	0.021	0.021	0.021	0.023	0.022	0.024
	(1.261)	(1.267)	(1.251)	(1.397)	(1.318)	(1.456)
IND	0.001	0.001	0.001	0.001	0.001	0.001
	(0.726)	(0.729)	(0.692)	(0.920)	(0.850)	(0.878)
TOP1	-0.006	-0.006	-0.005	-0.007*	-0.006	-0.008**
	(-1.479)	(-1.494)	(-1.450)	(-1.898)	(-1.619)	(-2.031)
SOE	0.012***	0.012***	0.013***	0.012***	0.012***	0.011***
	(3.546)	(3.530)	(3.575)	(3.312)	(3.450)	(3.203)
MSHL	0.055	0.055	0.054	0.055	0.056	0.052
	(1.520)	(1.520)	(1.503)	(1.526)	(1.543)	(1.447)
ROA	0.088***	0.088***	0.088***	0.088***	0.088***	0.087***
	(10.746)	(10.742)	(10.753)	(10.703)	(10.722)	(10.673)
LNA	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-8.957)	(-8.983)	(-8.869)	(-9.210)	(-9.056)	(-9.112)
CFO	0.054***	0.054***	0.054***	0.054***	0.054***	0.054***
	(7.554)	(7.556)	(7.550)	(7.526)	(7.537)	(7.541)
LEV	0.000	0.000	0.000	0.000	0.000	0.000
	(1.286)	(1.292)	(1.262)	(1.312)	(1.277)	(1.297)
Constant	0.107***	0.106***	0.106***	0.109***	0.108***	0.104***
	(10.645)	(10.603)	(10.581)	(10.862)	(10.739)	(10.053)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.098	0.099	0.098	0.100	0.099	0.100

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.22: Regression results on the relationship between absolute value of abnormal real earnings and financial director's characteristics

VARIABLES	Ab_real	Ab_real	Ab_real	Ab_real	Ab_real	Ab_real
Fd	0.002**					0.005
	(2.428)					(1.321)
Fdratio		0.014**				-0.030
		(2.169)				(-0.897)
dum_Fd			0.003			-0.002
			(0.952)			(-0.383)
Fdtop1				0.003**		0.001
				(1.969)		(0.409)
Fd_duality					0.003**	0.000
					(2.092)	(0.126)
BSIZE	-0.001	-0.000	-0.000	-0.000	-0.000	-0.001
	(-0.422)	(-0.084)	(-0.134)	(-0.281)	(-0.379)	(-0.896)
BSHL	0.067	0.067	0.066	0.070	0.069	0.068
	(1.583)	(1.587)	(1.559)	(1.641)	(1.625)	(1.610)
IND	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	(-0.864)	(-0.874)	(-0.926)	(-0.808)	(-0.784)	(-0.798)
TOP1	-0.004	-0.004	-0.003	-0.005	-0.005	-0.005
	(-0.399)	(-0.403)	(-0.351)	(-0.562)	(-0.489)	(-0.469)
SOE	0.041***	0.041***	0.041***	0.040***	0.040***	0.040***
	(4.543)	(4.534)	(4.599)	(4.453)	(4.481)	(4.492)
MSHL	0.007	0.006	0.004	0.004	0.006	0.007
	(0.072)	(0.061)	(0.046)	(0.043)	(0.069)	(0.080)
ROA	-0.036*	-0.036*	-0.035*	-0.036*	-0.036*	-0.036*
	(-1.720)	(-1.722)	(-1.700)	(-1.736)	(-1.736)	(-1.728)
LNA	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***
	(-6.876)	(-6.861)	(-6.773)	(-6.861)	(-6.863)	(-6.846)
CFO	0.006	0.006	0.006	0.006	0.006	0.006
	(0.341)	(0.342)	(0.331)	(0.324)	(0.325)	(0.335)
LEV	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	(10.668)	(10.660)	(10.632)	(10.638)	(10.631)	(10.659)
Constant	0.330***	0.327***	0.327***	0.330***	0.330***	0.337***
	(12.942)	(12.837)	(12.825)	(12.915)	(12.927)	(12.779)
Observations	12,314	12,314	12,314	12,314	12,314	12,314
Adj. R-squared	0.147	0.147	0.147	0.147	0.147	0.147

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. **Fd:** is the number of financial directors. **Fdratio:** is the ratio of financial directors setting on the board. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders.**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

From table 5.19 to table 5.22, the dependent variable is absolute value of abnormal cash flow from operating, the absolute value of abnormal cost of production, the absolute value of abnormal discretionary expenditure, and the absolute value of abnormal real earnings, respectively.

In table 5.19, the dependent variable is the absolute value of abnormal cash flow from operating. The result has shown that if there is a financial director setting on the board, the firm's degree of abnormal cash flow from operating will be reduce. The significant coefficient is -0.002 and the significant level is at 10 percent.

In table 5.20, the dependent variable is the absolute value of abnormal cost of production. The impact of the number of financial directors setting on the board on the abnormal cost of production is positively significant at 5 percent level, the coefficient is 0.001 and the t-test value is 2.142. The impact of the ratio of financial directors setting on the board on the abnormal cost of production is positively significant at 5 percent level, the coefficient is 0.012 and the t-test value is 2.020.

In table 5.21, the dependent variable is the absolute value of abnormal discretionary expenditure. The impact of the ratio of financial directors setting on the board on the abnormal discretionary expenditure is positively significant at 10 percent level, the coefficient is 0.004 and the t-test value is 1.657. The impact of the number of financial directors working for shareholders on the abnormal discretionary expenditure is positively significant at 5 percent level, the coefficient is 0.001 and the t-test value is 2.450. Moreover, the impact of the number of financial directors

working for the largest shareholder on the abnormal discretionary expenditure is positively significant at 1 percent level, the coefficient is 0.003 and the t-test value is 4.024.

Based on table 5.19 to table 5.21, the degree of firm's abnormal real earnings management will be impact by financial director's characteristics. The abnormal real earnings will positive related with the number and ratio of financial director setting on the board, and the number of financial directors working for shareholders or the largest shareholder. Thus, more financial directors setting on the board or working for shareholders, more abnormal cost of production increase and abnormal discretionary expenditure. However, the abnormal real earning will negative related with whether there is a financial director setting on the board.

The table 5.22 has shown the relationship between the firm's abnormal real earnings management and the financial directors' characteristics. The impact of the number of financial directors on abnormal real earnings is positively significant at 5 per cent level, and the coefficient is 0.002, the t-test value is 2.428. The impact of the ratio of financial directors on abnormal real earnings is positively significant at 5 per cent level, and the coefficient is 0.014, the t-test value is 2.169. Thus, the abnormal real earnings will positive related with the number and ratio of financial director setting on the board. Moreover, the impact of the number of financial directors working for shareholders on abnormal real earnings is positively significant at 5 per cent level, and the coefficient is -0.003, the t-test value is -2.092. The impact of the number of

financial directors working for the largest shareholder on abnormal real earnings is positively significant at 5 per cent level, and the coefficient is -0.003, the t-test value is -1.969.

Based on results form from table 5.15 to table 5.22, the financial director is tending to help the firm to manipulate earnings through real activity method. Financial directors tend to help increase earnings by manipulating the abnormal cost of production. In the other hand, shareholders tend to reduce the firm's earnings, and their financial directors will help them by manipulating the abnormal discretionary expenditure.

5.6.3 OLS, FGLS, WLS test

Table 5.23: OLS, FGLS and WSL Regression of the relationship between Fdratio and earnings management

	Ab_mjinv						Ab_Luinv					
	OLS		FGLS		WLS		OLS		FGLS		WLS	
	Coef.	P>t	Coef.	P>z	Coef.	P>t	Coef.	P>t	Coef.	P>z	Coef.	P>t
Fdratio	**-0.016**	**0.009**	**-0.016**	**0.008**	**-0.025**	**0.000**	**-0.015**	**0.012**	**-0.015**	**0.011**	**-0.015**	**0.011**
TOP1	**-0.080**	**0.000**	**-0.080**	**0.000**	**-0.108**	**0.000**	**-0.080**	**0.000**	**-0.080**	**0.000**	**-0.080**	**0.000**
BSIZE	**-0.004**	**0.001**	**-0.004**	**0.001**	**-0.005**	**0.000**	**-0.003**	**0.002**	**-0.003**	**0.002**	**-0.003**	**0.002**
BSHL	**0.137**	**0.003**	**0.137**	**0.000**	**0.164**	**0.000**	**0.138**	**0.003**	**0.138**	**0.000**	**0.138**	**0.000**
IND	**0.000**	**0.980**	**0.000**	**0.981**	**0.000**	**0.925**	**0.000**	**0.952**	**0.000**	**0.954**	**0.000**	**0.954**
SOE	**0.015**	**0.102**	**0.015**	**0.067**	**0.006**	**0.493**	**0.014**	**0.122**	**0.014**	**0.084**	**0.014**	**0.084**
MSHL	**0.173**	**0.104**	**0.173**	**0.024**	**0.145**	**0.012**	**0.173**	**0.104**	**0.173**	**0.023**	**0.173**	**0.023**
ROA	**0.139**	**0.000**	**0.139**	**0.000**	**0.039**	**0.024**	**0.132**	**0.000**	**0.132**	**0.000**	**0.132**	**0.000**
LNA	**0.005**	**0.000**	**0.005**	**0.000**	**0.009**	**0.000**	**0.005**	**0.000**	**0.005**	**0.000**	**0.005**	**0.000**
CFO	**-0.322**	**0.000**	**-0.322**	**0.000**	**-0.391**	**0.000**	**-0.308**	**0.000**	**-0.308**	**0.000**	**-0.308**	**0.000**
LEV	**-0.003**	**0.001**	**-0.003**	**0.000**	**-0.004**	**0.000**	**-0.004**	**0.000**	**-0.002**	**0.001**	**-0.002**	**0.001**

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices.**Fdratio:** is the ratio of financial directors setting on the board..**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

Table 5.24: OLS, FGLS and WSL Regression of the relationship between Fdratio and real earnings management

	Real_EM						Ab_real					
	OLS		FGLS		WLS		OLS		FGLS		WLS	
	Coef.	P>t	Coef.	P>z	Coef.	P>t	Coef.	P>t	Coef.	P>z	Coef.	P>t
Fdratio	0.024	0.022	0.024	0.019	0.016	0.200	0.024	0.002	0.024	0.001	0.020	0.012
TOP1	-0.049	0.001	-0.049	0.001	0.037	0.039	-0.010	0.362	-0.010	0.354	0.002	0.845
BSIZE	-0.001	0.686	-0.001	0.695	-0.005	0.022	0.000	0.733	0.000	0.742	-0.003	0.048
BSHL	0.001	0.989	0.001	0.990	0.083	0.410	0.005	0.919	0.005	0.916	0.025	0.654
IND	-0.007	0.107	-0.007	0.141	-0.006	0.362	-0.002	0.588	-0.002	0.620	0.000	0.965
SOE	-0.017	0.250	-0.017	0.210	0.046	0.006	0.038	0.001	0.038	0.000	0.068	0.000
MSHL	0.313	0.020	0.313	0.025	0.340	0.076	0.129	0.206	0.129	0.196	0.176	0.134
ROA	-0.554	0.000	-0.554	0.000	-0.584	0.000	-0.041	0.151	-0.041	0.072	0.003	0.914
LNA	0.027	0.000	0.027	0.000	0.052	0.000	-0.011	0.000	-0.011	0.000	-0.005	0.000
CFO	0.478	0.000	0.478	0.000	0.307	0.000	0.000	0.984	0.000	0.980	-0.040	0.056
LEV	0.007	0.000	0.007	0.000	0.006	0.000	0.007	0.000	0.007	0.000	0.007	0.000

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices.**Fdratio:** is the ratio of financial directors setting on the board..**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

This party is aiming to test the steady of the result. Therefore, this party uses the OLS, FGLS and WLS to run the regression, respectively.

In table 5.23, this study uses the OLS, FGLS and WSL to regression the relationship between the ratio of financial directors and investment matched modified Jones model, and investment matched Lu jianqiao model, respectively. When uses the absolute value of the investment matched modified Jones model as the dependent variable, the result of the impact of Fdratio on the company's earnings management is negatively significant at 1 per cent level by OLS. The coefficient of Fdratio is -0.016, and the p-value is 0.009. By FGLS, the coefficient of Fdratio is -0.016, and the p-value is 0.008. The impact of Fdratio on the company's earnings management is still negatively significant at 1 per cent level. Moreover, through WLS regression, the result is as same as the OLS and FGLS. The impact of Fdratio on the company's earnings management is negatively significant at 1 per cent level, the coefficient of Fdratio is -0.025, and the p-value is 0.000.

When it uses the investment matched Lu jianqiao model. The coefficient of Fdratio is -0.015, -0.015 and -0.015 respectively by OLS, FGLS and WLS. The p-value is 0.012, 0.011 and 0.011 respectively. Therefore, the impact of Fdratio on the company's earnings management is negatively significant at 5 per cent level.

In table 5.24, it uses the OLS, FGLS and WSL to regression the relationship between the ratio of financial directors and real earnings management, respectively. When it uses the absolute value of the real earnings management as the dependent variable, the

result of the impact of Fdratio on the company's earnings management is positively significant at 5 per cent level by OLS. The coefficient of Fdratio is 0.024, and the p-value is 0.022. By FGLS, the coefficient of Fdratio is 0.024, and the p-value is 0.019. The impact of Fdratio on the company's earnings management is still positively significant at 5 per cent level. Moreover, through WLS regression, the result is as same as the OLS and FGLS. The impact of Fdratio on the company's earnings management is positively by not significant, the coefficient of Fdratio is 0.016, and the p-value is 0.2.

When it uses the absolute value of real earnings management, the coefficient of Fdratio is 0.024, 0.024 and 0.020 by OLS, FGLS and WLS, respectively. The p-value is 0.002, 0.001 and 0.012, respectively. Therefore, the impact of Fdratio on the company's earnings management is positively significant at 1 per cent level.

In conclusion, through the different regression by OLS, FGLS and WLS, respectively. The result of the impact of the Fdratio on the company's earnings management is steady.

5.6.4Endogeneity and 2SLS, GMM

Endogeneity refers to the correlation between one or more explanatory variables in the model and the error term.

In a model, the values of some variables are determined internally in the model, as endogenous. The value of variables is determined externally from the model, is exogenous. In a general model, the explained variable should be endogenous, while the explanatory variable should be exogenous, and the model cannot determine the value of the explanatory variable. The endogeneity problem is that the explanatory variables are not completely exogenous; they are endogenous.

Endogeneity can destroy the "consistency" of parameter estimation.The "consistency" of parameter estimation means that when the sample size is large, the parameters estimated by the sample will approach to the real parameters of the population indefinitely. When the parameters with the sample are not consistent, it is of little reference value.

If x_1, x_2 and y are related as follows.

$y= \alpha +\beta_1 x_1 +\beta_2 x_2 +\varepsilon$ （44）

Where $Cov(x_1, \varepsilon)$, $Cov(x_2, \varepsilon) =0$ and the explanatory variables are

$x_2=\gamma x_1+\varepsilon$ （45）

If x_1 in (44) is omitted, then the $\beta_1 x_1$ term in (44) neutralizes part of the linear relation of x_2 by grouping $\frac{\beta_1}{\gamma}x_2$ in the $\beta_2 x_2$ term, changing the coefficient of x_2.

The remainder $\frac{\beta_1}{\gamma}\varepsilon$will be included in the error term.

So:

$Cov(x_2, \varepsilon)= Cov(\gamma x_1+\varepsilon, \varepsilon) \neq 0$

Therefore, the final explanatory variable x_2 will be correlated with the error term.

In order to ensure that the results were not affected by endogeneity, this study will use 2SLS and GMM for robustness tests in the following part.

Table 5.25: OLS, 2SLS and GMM Regression of the relationship between Fdratio and real earnings management

	Ab_mjinv			Ab_luinv		
VARIABLES	**OLS**	**2SLS**	**GMM**	**OLS**	**2SLS**	**GMM**
Fdratio	**-0.019****	**-0.019*****	**-0.025*****	**-0.019*****	**-0.019*****	**-0.024*****
	(-2.140)	**(-2.675)**	**(-3.203)**	**(-3.082)**	**(-2.582)**	**(-3.133)**
BSIZE	**-0.002**	**-0.002**	**-0.003****	**-0.002****	**-0.002**	**-0.002****
	(-1.090)	**(-1.439)**	**(-2.352)**	**(-2.080)**	**(-1.312)**	**(-2.235)**
BSHL	**0.174*****	**0.162*****	**0.130*****	**0.129*****	**0.165*****	**0.132*****
	(2.596)	**(4.044)**	**(2.719)**	**(2.691)**	**(4.131)**	**(2.751)**
IND	**-0.005**	**-0.004**	**-0.001**	**-0.001**	**-0.004**	**-0.001**
	(-1.387)	**(-1.173)**	**(-0.211)**	**(-0.272)**	**(-1.186)**	**(-0.188)**
TOP1	**0.006**	**0.007**	**0.009****	**0.009****	**0.006**	**0.009****
	(1.177)	**(1.622)**	**(2.351)**	**(2.194)**	**(1.522)**	**(2.234)**
SOE	**-0.074*****	**-0.074*****	**-0.073*****	**-0.071*****	**-0.073*****	**-0.073*****
	(-7.037)	**(-7.821)**	**(-8.636)**	**(-8.591)**	**(-7.795)**	**(-8.643)**
MSHL	**0.037*****	**0.035*****	**0.029*****	**0.028*****	**0.034*****	**0.027*****

	(3.391)	(4.066)	(3.323)	(3.251)	(3.901)	(3.156)
ROA	0.209	0.194**	0.152	0.154	0.193**	0.154
	(1.479)	(2.224)	(1.389)	(1.408)	(2.225)	(1.408)
LNA	0.138***	0.140***	0.141***	0.134***	0.134***	0.133***
	(4.264)	(7.194)	(4.772)	(4.550)	(6.957)	(4.535)
CFO	0.009***	0.008***	0.005***	0.005***	0.007***	0.005***
	(4.901)	(5.806)	(4.295)	(4.160)	(5.659)	(4.076)
LEV	-0.330***	-0.325***	-0.301***	-0.285***	-0.312***	-0.286***
	(-12.469)	(-19.412)	(-13.218)	(-12.589)	(-18.724)	(-12.625)
Constant	-0.004***	-0.004***	-0.003***	-0.003***	-0.004***	-0.003***
	(-4.488)	(-5.330)	(-4.469)	(-4.097)	(-5.036)	(-4.099)
Constant	-0.017	0.008	0.064***	0.063***	0.010	0.066***
	(-0.462)	(0.294)	(2.832)	(2.829)	(0.356)	(2.944)
Observations	10,251	10,251	10,251	10,251	10,251	10,251

Fd: is the number of financial directors. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders. **Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 5.26: OLS, 2SLS and GMM Regression of the relationship between Fdratio and real earnings management

	Real_EM			Ab_real		
VARIABLES	**OLS**	**2SLS**	**GMM**	**OLS**	**2SLS**	**GMM**
Fdratio	**0.022*** **	**0.022** **	**0.022** **	**0.022*** **	**0.022*** **	**0.022** **
	(3.296)	**(2.182)**	**(2.182)**	**(2.898)**	**(3.024)**	**(2.265)**
BSIZE	**-0.001**	**-0.001**	**-0.001**	**-0.001**	**-0.001**	**-0.001**
	(-0.695)	**(-0.399)**	**(-0.399)**	**(-0.665)**	**(-0.640)**	**(-0.646)**
BSHL	**-0.008**	**-0.008**	**-0.008**	**0.008**	**0.008**	**0.007**
	(-0.161)	**(-0.125)**	**(-0.125)**	**(0.157)**	**(0.162)**	**(0.155)**
IND	**-0.007***	**-0.007**	**-0.007**	**-0.001**	**-0.001**	**-0.001**
	(-1.906)	**(-1.372)**	**(-1.372)**	**(-0.431)**	**(-0.393)**	**(-0.433)**
TOP1	**-0.043*** **	**-0.043*** **	**-0.043*** **	**0.005**	**0.005**	**0.005**
	(-2.949)	**(-3.075)**	**(-3.075)**	**(0.455)**	**(0.463)**	**(0.456)**
SOE	**-0.023**	**-0.023***	**-0.023***	**0.026** **	**0.026*** **	**0.026** **
	(-1.476)	**(-1.720)**	**(-1.720)**	**(2.486)**	**(2.723)**	**(2.488)**
MSHL	**0.310** **	**0.310** **	**0.310** **	**0.137**	**0.137**	**0.137**
	(1.972)	**(2.216)**	**(2.216)**	**(1.332)**	**(1.364)**	**(1.334)**
ROA	**-0.547*** **	**-0.547*** **	**-0.547*** **	**-0.049***	**-0.049** **	**-0.049***
	(-21.174)	**(-17.354)**	**(-17.354)**	**(-1.744)**	**(-2.169)**	**(-1.745)**
LNA	**0.026*** **	**0.026*** **	**0.026*** **	**-0.010*** **	**-0.010*** **	**-0.010*** **
	(8.641)	**(14.340)**	**(14.340)**	**(-6.996)**	**(-7.297)**	**(-6.977)**
CFO	**0.471*** **	**0.471*** **	**0.471*** **	**-0.004**	**-0.004**	**-0.004**
	(8.587)	**(17.049)**	**(17.049)**	**(-0.143)**	**(-0.180)**	**(-0.143)**
LEV	**0.007*** **	**0.007*** **	**0.007*** **	**0.007*** **	**0.007*** **	**0.007*** **
	(6.291)	**(6.091)**	**(6.091)**	**(6.820)**	**(8.357)**	**(6.829)**
Constant	**-0.474*** **	**-0.474*** **	**-0.474*** **	**0.378*** **	**0.378*** **	**0.377*** **
	(-7.310)	**(-12.095)**	**(-12.095)**	**(12.945)**	**(13.436)**	**(12.831)**

Fd: is the number of financial directors. **Dum_Fd:** that 1 is there are some financial directors setting on the board. **Fdtop1**: is the number of financial directors working for the largest shareholder. **Fd_duality:** is the number of financial directors working for top 10 shareholders. **Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

In order to remove the impact of endogeneity on the result of the regression, this study uses 2SLS and GMM to test the regression result. And the result of the regression is steady. The impact of Fdratio on the Ab_mjinv is negative significant at the 5 percent

level, and the impact on the Ab_luinv is negative significant at the 5 percent level. The result of GMM is as same as the 2SLS.

For the impact on real earnings management. The impact of Fdratio on the Real_EM is positive significant at the 1 percent level and the impact on the Ab_real is positive significant at the 1 percent level. The result of OLS, 2SLS and GMM is same.

Overall. consider the endogeneity, the impact of the Fdratio on company's earnings management is still steady.

5.7 conclusion

In conclusion, based on the above results, the financial director will help the firm to manipulate earnings. Moreover, they tend to choose the real earnings management method, and it cause the decrease of the level of discretionary accruals. At last, financial directors tend manipulate the abnormal cost of production to increase firm’s earnings, and tend to manipulate the abnormal discretionary expenditure to reduce firm’s earnings.

According to the above result, both the modified Jones model and the Lu jianqiao model failed to detect the impact of the director with a financial background on earnings management, and the result of regression is not significant. However, as the result of the investment matched models, if some directors are sitting on the board, the degree of the company's earnings management will decrease. Moreover, this director's function does not be affected whether the director is from the controlling shareholder or not. However, the impact of the financial directors on real activities earnings management is positive. Moreover, if these directors are from the controlling shareholder, they will help the controlling shareholder to do earnings management through practical operating activities.

Appendix:

Dependent variables:

DA: represents the level of earnings management of the firm i at year t and measured by the Jones model, modified Jones model, Lujianqiao model, investment marched modified Jones model and investment marched Lujianqiao model and into absolute value, respectively.

EM_Real : represents the level of real earnings management of the firm i at year t, and measured by abnormal cash flow from operating, abnormal cost of production, abnormal discretionary expenditure, and abnormal real earnings management, respectively.

Key Independent Variables

Fd: is the number of financial directors setting on the board.

Fdratio: is the ratio of financial directors setting on the board

Dum_Fd: is the dummy variable that 1 is there are some financial directors setting on the board, 0 is other.

Fdtop1: is the number of financial directors working for the largest shareholder.

Fd_duality: is the number of financial directors working for top 10 shareholders.

Control variables

Bsize: represents board size.

BSHL: represents the board shareholding ratio.

IND: represents the percentage of independent directors sitting in the board.

CEO_duality: representsCEO duality.

TOP1: represents the largest shareholder's shareholding ratio.

SOE: represents the percentage of a firm's total shares owned by SOE.

MSHL: is the percentage of a firm's total shares owned by managers of firm;

ROA: is the firm's return on total assets;

LNA: is the natural log of assets;

LEV: is the firm's leverage ratio;

CFO: is the firm's cash flow from operating.

Chapter 6: The Influence of Relationship between the CEO and Largest Shareholder on Earnings Management

Abstract

According to the previous research, as the increase of the shareholding of the majority shareholder. The principal contradiction of agency problem has changed from the contradiction between managers and shareholders to the composition of major shareholders and minority shareholders (Porta, Rafael La, Lopez-de-Silanes et al. 1998). However, it ignored that what role of the managers play in this situation. Therefore, the last objective of this study is to research the impact of the relationship between the CEO and the controlling shareholder on earnings management.

6.1 Introduction

This study investigate the impact of the relationship between the CEO and controlling shareholder on the company's earnings management. Same as the above,this study use the new model measuring earnings management. The results show that when the controlling shareholder's shareholding at a low level, there is a conflict between the CEO and controlling shareholder. However, as the increasing of the controlling shareholder's shareholding, the CEO tends to collaborate with the controlling shareholder to manipulate the company's earnings.

6.2 Literature Review

Previous studies document the effect of managerial ownership structure on earnings management, Dempsey, Hunt III et al. (1993) point out that if a firm has a low proportion of shareholding by management, and it tends to manipulate its earnings through non-recurrent item. Warfield, Wild et al. (1995) argue that managerial shareholding will reduce the cost of agent. Therefore, the possibility of earnings manipulation by management team may decrease.

Moreover, Yeo, Tan et al. (2002) find a non-linear relationship between management shareholding and the quality of earnings information. Particularly, the earnings information quality increases when the proportion of management shareholding rises. However, beyond certain threshold, the quality of earnings information will decline when the proportion of managerial shareholdings keeps increasing. Moreover, Cheng, Warfield (2005) examined the relationship between earnings management and equity incentives. They argue that managers who possess more equity-related compensation package are more likely to manipulate earnings so that they can benefit from selling shares in the future. Their findings are consistent with their argument.

Finally, Hazarika, Karpoff et al. (2012) found that the CEO turnover (but not voluntary turnover) are related to firm's earnings management positively. Hazarika, Karpoff et al. (2012) argue that the likelihood of CEO turnover will increase if CEOs manipulate firm earnings aggressively. They argue that this is because higher earnings will attract more attention and supervision from directors and force CEOs to step down from the company they are working.

6.3 Hypothesis

Previous studies document the agency problem about the conflict between the inside manager and outside investors (Jensen and Meckling, 1976). However, as the mechanisms as the pyramids, the cross-shareholdings, and the multiple-class share, the large shareholder's control rights have become greater than the cash flow rights. Consequently, the factor of tunneling has existed, controlling shareholders tend to expropriate minority shareholders. Therefore, the main agency issue is no longer the conflict between the manager and shareholder, but the conflict between the controlling shareholder and minority shareholders.

However, the manager has played an important role in the tunneling. As the manager is the actual operator, they hole more private information about the firm's operating and participate in major operating decision making. Thus, tunneling cannot without the manager's help. However, as with the traditional agent theory, the benefit of the manager is not in accordance with the controlling shareholder's benefit. The manager's pay is often tied to the firm's performance, but the tunneling from controlling shareholders tends to reduce the firm's performance (Claessens et al., 2002). On the other hand, the controlling shareholder takes the most benefit from tunneling, and the manager gets little or no benefit from tunneling. Thus, for a manager with high pay-performance sensitivity, the cost of tunneling is more than the benefit from tunneling (Min Zhang, 2014). Thus, this situation will lead the manager to resist the tunneling rather than help controlling shareholders to achieve private interests through

tunneling.

Therefore, to get help from managers, controlling shareholders tend to collude with managers. Controlling shareholders tend to reduce the manager's cost in tunneling and rise their benefit. On one hand, controlling shareholder weaken the manager's pay-performance and turnover-performance sensitivity (Daniel L, 2000; Wen-Hsien Tsai, 2006). Thus, the manager's pay will not be impacted by worse performance. On the other hand, to raise the manager's benefit, the controlling shareholder will increase the manager's compensation in exchange for the loyalty of the manager to the controlling shareholder (Barontini, 2010). Hence, the manager and the controlling shareholder have a homogeneous utility in terms of tunneling.

However, most previous studies focus on the relationship between controlling shareholder and manager (collusion or against), or the impact of the relationship between controlling shareholder and manager on manager's incentive (compensation and tenure). The question is, when the controlling shareholders have colluded with the manager or controlling shareholder and the manager have homogeneous utilities, will the manager to help the controlling shareholder to do tunneling? In other words, if a controlling shareholder wants to do tunneling, they must collude with the manager, but it doesn't mean the collusion between controlling shareholder and manager will lead to tunneling, and there is no evidence to prove that there is a significant relationship between the collusion between controlling shareholder and manager and tunneling.

Moreover, most previous studies research the relationship between controlling shareholder and manager was from the angle of tunneling. However, the tunneling is not the only aim of collusion between controlling shareholder and manager, and the tunneling is not the only way to encroach on the interests of minority shareholders.

Therefore, I tend to discuss the relationship between controlling shareholder and manager from the angle of earnings management, because both controlling shareholder and manager have the incentive to do earnings management.

Firstly, the manager has an incentive to pushing up the firm's performance through earnings management as the pay-performance sensitivity (Bergstresser, 2006) and the turnover-performance sensitivity (Hazarika et al. 2012). Based on the management compensation hypothesis of positive accounting theory, since managers' remuneration is tied up with the firm's performance, managers are willing to maximize the current earnings to pursue a higher current compensation (Zmijewski, 1983). In addition, managers of firms with poor performance tend to raise the earnings to prevent them from fired (Roychowdhury, 2006). Dempsey et al. (1993) point out that if a firm has a low proportion of shareholding by management, and it tends to manipulate its earnings through the non-operating item. Warfield et al. (1995) argue that managerial shareholding will reduce the cost of an agent., and managers' income will consistent with the value of firms. Therefore, the possibility of earnings manipulation by the management team may decrease. However, Yeo et al. (2002) find a non-linear relationship between management shareholding and the quality of earnings

information. The earnings information quality increases when the proportion of management shareholding rises. However, beyond a certain threshold, the quality of earnings information will decline when the proportion of managerial shareholdings keeps increasing. Moreover, the supervision of creditors and the government will restrain managers to do earnings management (Li et al. 2011).

After that, in previous studies, the relationship between earnings management and controlling shareholding is inconsistent. Porta (1998) found a positive relationship between the proportion of controlling shareholding and earnings management, Bushman (2000) have proposed the same view. However, from the research of Li and Guan (2004), the relationship between the proportion of controlling shareholding and earnings management exhibiting a "U" shape. The firm's earnings management will increase as the rise of the largest shareholding, if the proportion keeps rising, the firm's earnings management will decrease.

Based on the information asymmetry theory and agent theory, the entrenchment hypothesis claims that as the gap of shareholding between controlling shareholder and minority shareholder expands, the information asymmetry and agent problem between controlling shareholder and minority shareholder will more serious. The information asymmetry gives the controlling shareholder a strong motivation and condition to do earnings management, and that caused a positive relationship between controlling shareholders' shareholding and the degree of earnings management (La Porta et al. 1999).

However, the convergence of interest hypothesis has claimed that as the increasing of the controlling shareholders' shareholding, the interest of controlling shareholder and the interest of the firm tend to be convergent. Therefore, the controlling shareholder will tend to let the firm operating better rather than encroach on the firm's interests (Claessens et al., 2000). Moreover, the alignment effects claimed that the controlling shareholder has the motivation to maintain the firm's goodwill and "going concerned" because the interest of controlling shareholders have a connection with the firm, manager, and other shareholders (Wang, 2006). Therefore, the shareholder has less motivation to harm the firm value. These two theories have explained the negative relationship between controlling shareholders' shareholding and the degree of earnings management.

Based on the above viewpoints, both managers and controlling shareholders have the motivation to increase or decrease the degree of earnings management. Therefore, when the motivation is the opposite, the controlling shareholder and manager tend to monitor each other. On the other hand, when the motivation of the controlling shareholder and manager is convergent, the controlling shareholder and the manager tend to collusion with each other. However, as the manager is the person who actually manipulates the firm's earnings, so the question is what role did the controlling shareholders play in the collusion. The first possibility is that the controlling shareholder chose a "free ride". The controlling shareholders do not supervise the manger and gain profits from earnings management, but do not participate in earnings management in person. Another possibility is that the controlling shareholder not only

does not supervise the managers but also help them so that they can manipulate the firm's earnings more easily.

Therefore, to test the above question, this study will focus on the relationship between controlling shareholders and managers from the angle of earnings management. Hence, to achieve this objective, we propose a hypothesis as follows:

H_1: If the controlling shareholder and manager collusion with each other, thecontrolling shareholders will help the manager to do earnings management.

In order to examine the impact of CEO on earnings management with weak or no supervision.

H_2: If the CEO sits on the board,CEO tends to do earnings management.

Thus, as the aim to test the hypothesis, this study will use the dummy variable CEO_top1 that 1 is the CEO working for the controlling shareholder, 0 is others to measure the relationship between controlling shareholder and manager. If the CEO_top1 is 1, the relationship between the controlling shareholder and manager is collusion. If the CEO_top1 is 0, the relationship between the controlling shareholder and the manager is not collusion.

To address the above questions, this study will focus on Chinese listed companies. Firstly, the ownership structure in most Chinese listed companies is concentrated, which indicates that the main agency problem is the conflict between controlling shareholders and minority shareholders (Lefort, Walker 2007). Furthermore, many CEOs in Chinese listed companies are not from controlling shareholders, which

suggests that the interest of these CEOs might not be in line with the interest of controlling shareholders. Secondly, earnings management is pervasive in many Chinese listed companies. For example,Yu, Du et al. (2006) document that Chinese firms manipulate ROE (Return on Equity) to meet the minimal requirement of rights offering. Chen, Lee, and Li (2008)show that local governments in China help listed companies in earnings management to circumvent the central government's regulation. Thus, concentrated ownership structure with prevalent earnings management in China provides an ideal setting to explore the relationship between corporate governance and earnings management from the perspective of agency issue coming from the conflict of controlling shareholders and managers.

6.4 Data and Methodology

6.4.1 Data

This study uses all Chinese listed firms in the mainboard of Shanghai Stock Exchange and Shenzhen Stock Exchange from 2007 to 2016 as the research sample. The original sample is 13215 firm-years. this study eliminate 2547 sample as data unavailable, eliminate 345 sample of financial industry firm, eliminate 20 sample of educational industry firms and health and social work industry firms. The total sample size is 10303. All data come from CSMAR and firms' annual report. All variables are winsorized at 1 per cent and 99 per cent to control for potential outlier influence.

Table 6.1:Summary Statistics of Key Variables and Control Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
CEO_duality	**10303**	**0.139**	**0.346**	**0.000**	**1.000**
CEO_director	**10303**	**0.913**	**0.282**	**0.000**	**1.000**
CEO_top10	**10303**	**0.248**	**0.432**	**0.000**	**1.000**
CEO_top1	**10303**	**0.213**	**0.410**	**0.000**	**1.000**
TOP1	**10303**	**0.241**	**0.185**	**0.003**	**0.632**
BSIZE	**10303**	**9.132**	**1.862**	**5.000**	**15.000**
BSHL	**10303**	**0.013**	**0.058**	**0.000**	**0.373**
IND	**10303**	**3.313**	**0.699**	**1.000**	**8.000**
SOE	**10303**	**0.111**	**0.192**	**0.000**	**0.750**
MSHL	**10303**	**0.005**	**0.027**	**0.000**	**0.188**
ROA	**10303**	**0.027**	**0.070**	**-0.437**	**0.200**
LNA	**10303**	**22.112**	**1.348**	**18.687**	**25.796**
CFO	**10303**	**0.044**	**0.080**	**-0.203**	**0.257**
LEV	**10303**	**1.559**	**1.905**	**-3.435**	**12.959**

CEO_duality: that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating..

6.4.2 Methodology

In order to investigate H_1 H_2 and H_3, this study will use 5 models to measure the firm's discretionary accruals, respectively: 1) modified Jones model; 2) Lu jianqiao model; 3) investment marched modified Jones model; 4) investment marched Lu jianqiao model; 5) Real activity model.

6.4.3 Model specification

In order to investigate H1, this study use the regression model as follow:

$$DA = \alpha + \beta_1 CEO\_duality + Controls + \varepsilon \quad (46)$$

$$DA = \alpha + \beta_1 CEO\_director + Controls + \varepsilon \quad (47)$$

$$DA = \alpha + \beta_1 CEO\_top10 + Controls + \varepsilon \quad (48)$$

$$DA = \alpha + \beta_1 CEO\_top1 + Controls + \varepsilon \quad (49)$$

$$DA = \alpha + \beta_1 CEOtop1shl + Controls + \varepsilon \quad (50)$$

6.4.3.1 The dependent variable

DA: represents the level of earnings management of the firm i at year t and measured by the Jones model, modified Jones model, Lu jianqiao model, investment marched

modified Jones model and investment marched Lu jianqiao model and into absolute value, respectively.

Real_EM: represents the level of real earnings management of the firm i at year t, and measured by abnormal cash flow from operating, abnormal cost of production, abnormal discretionary expenditure, and abnormal real earnings management, respectively.

6.4.3.2 Key Independent Variables

CEO_duality: representsCEO duality and it is a dummy variable that 1 is the CEO is duality as the chairman, 0 is others.

CEO_director: represent CEO duality and it is a dummy variable that 1 is the CEO is duality as a director setting in the board, 0 is others.

CEO_top10: represent CEO duality and it is a dummy variable that 1 is the CEO is working for shareholders (top10), 0 is others.

CEO_top1: represent CEO duality and it is a dummy variable that 1 is the CEO is working for the largest shareholder, 0 is others.

CEOtop1shl: is an interaction variable that equal CEO_top1 times TOP1 (the largest shareholder's shareholding).

Control variables

The define of control variable is as same as in the **4.4.1.3**

6.4.4 Data analysis

6.4.4.1 **Multicollinearity**

Table 6.2: Correlation Matrix

	CEO_duality	CEO_director	CEO_top10	CEO_top1	TOP1	BSIZE	BSHL
CEO_duality	**1**						
CEO_director	**0.115**	**1**					
CEO_top10	**0.195**	**0.177**	**1**				
CEO_top1	**0.166**	**0.161**	**0.906**	**1**			
TOP1	**-0.059**	**0.036**	**0.055**	**0.078**	**1**		
BSIZE	**-0.132**	**0.063**	**0.055**	**0.049**	**0.008**	**1**	
BSHL	**0.147**	**0.015**	**-0.049**	**-0.078**	**-0.065**	**-0.067**	**1**
IND	**-0.102**	**0.019**	**0.068**	**0.059**	**0.033**	**0.796**	**-0.04**
SOE	**-0.078**	**0.011**	**-0.01**	**0**	**-0.458**	**0.153**	**-0.114**
MSHL	**0.22**	**0.048**	**-0.018**	**-0.054**	**-0.064**	**-0.042**	**0.798**
ROA	**-0.023**	**0.025**	**0.028**	**0.028**	**0.034**	**0.041**	**0.066**
LNA	**-0.11**	**0.067**	**0.125**	**0.135**	**0.296**	**0.29**	**-0.029**
CFO	**-0.035**	**0.01**	**0.022**	**0.025**	**0.022**	**0.071**	**0.014**
LEV	**-0.025**	**0.025**	**0.032**	**0.04**	**0.049**	**0.058**	**-0.056**

	IND	SOE	MSHL	ROA	LNA	CFO	LEV
IND	**1**						
SOE	**0.122**	**1**					
MSHL	**-0.028**	**-0.096**	**1**				
ROA	**0.015**	**0.037**	**0.061**	**1**			
LNA	**0.295**	**0.095**	**-0.032**	**0.141**	**1**		
CFO	**0.039**	**0.053**	**0.008**	**0.308**	**0.072**	**1**	
LEV	**0.06**	**0.006**	**-0.061**	**-0.19**	**0.207**	**-0.148**	**1**

CEO_duality: that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:**is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating.

Table 6.3The variance inflation factor

Variable	VIF	1/VIF
ceod10	6.53	0.153056
ceod1	5.87	0.170244
mshl	2.89	0.346325
bsize	2.82	0.354251
bshl	2.81	0.355255
ind	2.78	0.360054
ceod	1.89	0.529696
top1	1.52	0.65676
soe	1.43	0.701549
lna	1.39	0.721395
roa	1.17	0.853034
cfoasset	1.13	0.88778
lev	1.12	0.895045
ceo_ditrecor	1.03	0.969789
Mean VIF	2.46	

The empirical judgment method shows: when 0<VIF<10, there is no multicollinearity; when 10≤VIF<100, there is strong multicollinearity; when VIF≥100, there is severe multicollinearity.According to the table 4.3, there is no multicollinearity between these variables. The largest VIF is 6.53 which is smaller than 10.

6.4.4.2Heteroskedasticity

Table 6.4 White'stest for Ho: homoskedasticity

		against Ha: unrestricted heteroskedasticity	
		chi2(110) =	1019.09
		Prob > chi2 =	0.0000
Cameron		& Trivedi's decomposition of IM-test	
Source	chi2	df	p
Heteroskedasticity	1019.09	110	0
Skewness	62	14	0
Kurtosis	52.68	1	0
Total	1133.77	125	0

According to the table 4, the p-value of the White's test is 0, and reject the H_0. Therefore, there is heteroscedasticity. And this study will use the FGLS and WGL to do the robust test.

6.4.4.3 Auto-correlation

Table 6.5 Wooldridge test for autocorrelation

H0: no first-order autocorrelation	
F (1, 1134) =	**7.963**
Prob > F =	**0.0049**

According to the result of the Wooldridge test that the p-value of F-test is 0.0049 and reject the H_0. Therefore, the model has autocorrelation, and this study will use the FGLS and WLS to do the robust test.

6.4.4.4Random effect and fixed effect

Table 6.6 OLS with random effect and fixed effect		
VARIABLES	**re**	**fe**
CEO_top1	**-0.002**	**0.002**
	(-0.411)	**(0.327)**
CEO_top10	**0.001**	**-0.002**
	(0.188)	**(-0.223)**
CEO_duality	**0.003**	**0.004**
	(1.188)	**(1.314)**
CEO_ditrecor	**-0.005****	**-0.007*****
	(-2.549)	**(-2.760)**
BSIZE	**0.001****	**-0.001**
	(2.091)	**(-0.785)**
BSHL	**-0.005**	**0.041**
	(-0.292)	**(1.407)**
IND	**0.000**	**0.001**
	(0.148)	**(0.665)**
TOP1	**-0.007***	**-0.013****
	(-1.758)	**(-2.447)**
SOE	**0.012*****	**0.008**
	(3.275)	**(1.605)**
MSHL	**0.011**	**0.028**
	(0.280)	**(0.469)**
ROA	**0.878*****	**0.866*****
	(105.883)	**(94.504)**
LNA	**0.004*****	**0.003*****
	(7.217)	**(3.003)**
CFO	**-1.087*****	**-1.123*****
	(-152.073)	**(-142.570)**
LEV	**-0.002*****	**-0.001*****
	(-5.993)	**(-3.784)**
Constant	**-0.067*****	**-0.025**
	(-5.585)	**(-1.119)**
Observations	**10,251**	**10,251**
R-squared	**0.745**	**0.745**
Adj. R-squared	**0.706**	**0.706**

CEO_duality: that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO

duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

Table 6.7: Hausman test

	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
CEO_duality	**0.002392**	**-0.00248**	**0.004871**	**0.004097**
CEO_director	**-0.00162**	**0.001108**	**-0.00273**	**0.00422**
CEO_top10	**0.003508**	**0.002673**	**0.000835**	**0.001432**
CEO_top1	**-0.00687**	**-0.0053**	**-0.00156**	**0.001359**
TOP1	**-0.00061**	**0.00117**	**-0.00178**	**0.00054**
BSIZE	**0.041057**	**-0.00502**	**0.046075**	**0.02352**
BSHL	**0.001248**	**0.000215**	**0.001034**	**0.001185**
IND	**-0.01344**	**-0.00711**	**-0.00633**	**0.003706**
SOE	**0.008099**	**0.012209**	**-0.00411**	**0.003388**
MSHL	**0.027776**	**0.0105**	**0.017276**	**0.045728**
ROA	**0.866106**	**0.877854**	**-0.01175**	**0.003874**
LNA	**0.002996**	**0.004125**	**-0.00113**	**0.000816**
CFO	**-1.12251**	**-1.08703**	**-0.03548**	**0.003273**
LEV	**-0.00142**	**-0.0019**	**0.000479**	**0.000201**
_cons	**-0.02482**	**-0.06651**	**0.041688**	**0.018673**

CEO_duality: that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 251.32
Prob>chi2 =0.0000
(V_b-V_B is not positive definite)

Table 6.7 is the Hausman test of the sample. As the result of the test, the value of the chi2(9) is 251.32, and the P-value is 0. Therefore, it rejects the null hypothesis and uses the fixed effect in the next OLS regression.

6.5 Regression results

6.5.1 Discretionary accruals

Table 6.8 to table 6.15 are results of the regression between firm's discretionary accruals and CEO's characteristics. In table 3 to table 6, the dependent variable is firm's discretionary accruals which measured by modified Jones model, Lu jianqiao model, investment matched modified Jones model and investment matched Lu jianqiao model, respectively.

Table 6.8: Regression results on the relationship between discretionary accruals (Modified Jones model) and CEO's characteristics

VARIABLES	DA_MJ	DA_MJ	DA_MJ	DA_MJ	DA_MJ	DA_MJ
CEO_duality	0.001					0.002
	(0.626)					(0.991)
CEO_director		-0.003*				-0.003
		(-1.708)				(-1.622)
CEO_top10			-0.001			-0.000
			(-0.861)			(-0.004)
CEO_top1				-0.001	-0.006***	-0.006*
				(-0.962)	(-2.789)	(-1.701)
CEOtop1shl					0.018***	0.018***
					(2.766)	(2.746)
TOP1	-0.002	-0.002	-0.003	-0.002	-0.007*	-0.006
	(-0.664)	(-0.673)	(-0.706)	(-0.678)	(-1.723)	(-1.622)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.000
	(0.643)	(0.731)	(0.597)	(0.595)	(0.591)	(0.779)
BSHL	-0.004	-0.006	-0.006	-0.006	-0.006	-0.006
	(-0.288)	(-0.394)	(-0.383)	(-0.385)	(-0.424)	(-0.422)
IND	0.000	-0.000	0.000	0.000	0.000	-0.000
	(0.076)	(-0.013)	(0.107)	(0.102)	(0.046)	(-0.059)
SOE	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001
	(-0.478)	(-0.469)	(-0.525)	(-0.512)	(-0.441)	(-0.360)
MSHL	0.006	0.012	0.010	0.010	0.009	0.007
	(0.172)	(0.387)	(0.316)	(0.300)	(0.293)	(0.212)
ROA	0.899***	0.899***	0.899***	0.899***	0.899***	0.899***
	(113.778)	(113.803)	(113.777)	(113.781)	(113.822)	(113.835)
LNA	0.005***	0.005***	0.005***	0.005***	0.005***	0.005***
	(10.989)	(11.009)	(11.004)	(11.013)	(10.991)	(11.044)
CFO	-1.100***	-1.100***	-1.100***	-1.100***	-1.100***	-1.100***
	(-159.722)	(-159.759)	(-159.723)	(-159.710)	(-159.751)	(-159.718)
LEV	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-5.016)	(-4.991)	(-5.005)	(-5.001)	(-4.959)	(-4.939)
Constant	-0.083***	-0.080***	-0.083***	-0.083***	-0.082***	-0.081***
	(-8.341)	(-8.055)	(-8.360)	(-8.367)	(-8.228)	(-8.009)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.753	0.753	0.753	0.753	0.753	0.753

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating.

Table 6.9: Regression results on the relationship between discretionary accruals (LJQ model) and CEO's characteristics

VARIABLES	DA_Lu	DA_Lu	DA_Lu	DA_Lu	DA_Lu	DA_Lu
CEO_duality	0.001					0.001
	(0.551)					(0.856)
CEO_director		-0.004**				-0.004*
		(-1.981)				(-1.948)
CEO_top10			-0.001			0.001
			(-0.468)			(0.272)
CEO_top1				-0.001	-0.006***	-0.007**
				(-0.645)	(-2.941)	(-1.981)
CEOtop1shl					0.021***	0.021***
					(3.193)	(3.163)
TOP1	-0.004	-0.004	-0.004	-0.004	-0.010**	-0.009**
	(-1.121)	(-1.120)	(-1.158)	(-1.140)	(-2.316)	(-2.198)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.001
	(0.912)	(1.026)	(0.875)	(0.873)	(0.867)	(1.071)
BSHL	0.003	0.001	0.002	0.002	0.001	0.001
	(0.185)	(0.073)	(0.120)	(0.111)	(0.066)	(0.058)
IND	0.001	0.000	0.001	0.001	0.001	0.000
	(0.457)	(0.351)	(0.476)	(0.476)	(0.411)	(0.280)
SOE	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002
	(-0.851)	(-0.833)	(-0.886)	(-0.880)	(-0.799)	(-0.705)
MSHL	0.008	0.016	0.012	0.012	0.012	0.010
	(0.252)	(0.471)	(0.369)	(0.362)	(0.354)	(0.300)
ROA	0.877***	0.877***	0.877***	0.877***	0.877***	0.877***
	(106.686)	(106.723)	(106.678)	(106.683)	(106.737)	(106.758)
LNA	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
	(8.855)	(8.883)	(8.844)	(8.860)	(8.834)	(8.883)
CFO	-1.074***	-1.074***	-1.074***	-1.074***	-1.074***	-1.074***
	(-149.852)	(-149.894)	(-149.853)	(-149.842)	(-149.896)	(-149.873)
LEV	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-3.041)	(-3.013)	(-3.035)	(-3.031)	(-2.983)	(-2.958)
Constant	-0.070***	-0.067***	-0.070***	-0.070***	-0.068***	-0.067***
	(-6.771)	(-6.463)	(-6.765)	(-6.778)	(-6.620)	(-6.363)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.727	0.727	0.727	0.727	0.728	0.728

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.10: Regression results on the relationship between discretionary accruals (Investment matched Modified Jones model) and CEO's characteristics

VARIABLES	DA_MJinv	DA_MJinv	DA_MJinv	DA_MJinv	DA_MJinv	DA_MJinv
CEO_duality	0.006					0.006
	(1.422)					(1.370)
CEO_director		-0.005				-0.006
		(-1.067)				(-1.365)
CEO_top10			0.003			0.008
			(0.878)			(1.123)
CEO_top1				0.001	0.006	-0.001
				(0.435)	(1.180)	(-0.172)
CEOtop1shl					-0.019	-0.020
					(-1.149)	(-1.184)
TOP1	-0.071***	-0.072***	-0.072***	-0.072***	-0.067***	-0.065***
	(-7.600)	(-7.683)	(-7.704)	(-7.713)	(-6.620)	(-6.409)
BSIZE	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000
	(-0.461)	(-0.473)	(-0.549)	(-0.552)	(-0.550)	(-0.351)
BSHL	0.158***	0.153***	0.157***	0.156***	0.156***	0.159***
	(4.177)	(4.052)	(4.145)	(4.115)	(4.131)	(4.180)
IND	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-0.712)	(-0.756)	(-0.722)	(-0.705)	(-0.682)	(-0.799)
SOE	0.022**	0.022**	0.022**	0.021**	0.021**	0.022***
	(2.554)	(2.517)	(2.512)	(2.496)	(2.466)	(2.595)
MSHL	0.129	0.155*	0.147*	0.149*	0.149*	0.131
	(1.564)	(1.895)	(1.800)	(1.826)	(1.829)	(1.586)
ROA	0.931***	0.931***	0.931***	0.931***	0.931***	0.932***
	(45.855)	(45.854)	(45.821)	(45.828)	(45.827)	(45.851)
LNA	0.021***	0.021***	0.021***	0.021***	0.021***	0.021***
	(17.859)	(17.829)	(17.653)	(17.691)	(17.701)	(17.741)
CFO	-0.889***	-0.890***	-0.890***	-0.890***	-0.890***	-0.889***
	(-50.224)	(-50.242)	(-50.249)	(-50.241)	(-50.246)	(-50.217)
LEV	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-2.949)	(-2.931)	(-2.956)	(-2.952)	(-2.970)	(-2.947)
Constant	-0.365***	-0.359***	-0.360***	-0.361***	-0.363***	-0.362***
	(-14.298)	(-13.995)	(-14.127)	(-14.156)	(-14.195)	(-13.957)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.310	0.310	0.310	0.310	0.310	0.310

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash

flow from operating

Table 6.11: Regression results on the relationship between discretionary accruals (Investment matched LJQ model) and CEO's characteristics

VARIABLES	DA_Luinv	DA_Luinv	DA_Luinv	DA_Luinv	DA_Luinv	DA_Luinv
CEO_duality	0.006					0.006
	(1.453)					(1.375)
CEO_director		-0.006				-0.007
		(-1.186)				(-1.514)
CEO_top10			0.003			0.009
			(1.055)			(1.199)
CEO_top1				0.002	0.006	-0.002
				(0.598)	(1.138)	(-0.248)
CEO_top1_shl					-0.016	-0.017
					(-0.974)	(-1.012)
TOP1	-0.072***	-0.073***	-0.073***	-0.073***	-0.069***	-0.067***
	(-7.675)	(-7.757)	(-7.781)	(-7.795)	(-6.764)	(-6.545)
BSIZE	-0.000	-0.000	-0.001	-0.001	-0.001	-0.000
	(-0.406)	(-0.411)	(-0.494)	(-0.497)	(-0.495)	(-0.285)
BSHL	0.167***	0.161***	0.166***	0.165***	0.165***	0.167***
	(4.378)	(4.247)	(4.356)	(4.325)	(4.338)	(4.385)
IND	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-0.582)	(-0.633)	(-0.597)	(-0.579)	(-0.559)	(-0.687)
SOE	0.021**	0.020**	0.020**	0.020**	0.020**	0.021**
	(2.399)	(2.363)	(2.359)	(2.341)	(2.315)	(2.450)
MSHL	0.129	0.156*	0.147*	0.149*	0.149*	0.132
	(1.559)	(1.903)	(1.793)	(1.824)	(1.826)	(1.587)
ROA	0.913***	0.913***	0.912***	0.912***	0.912***	0.913***
	(44.754)	(44.756)	(44.717)	(44.725)	(44.723)	(44.751)
LNA	0.021***	0.021***	0.021***	0.021***	0.021***	0.021***
	(17.306)	(17.277)	(17.084)	(17.123)	(17.131)	(17.173)
CFO	-0.866***	-0.867***	-0.867***	-0.867***	-0.867***	-0.866***
	(-48.717)	(-48.735)	(-48.745)	(-48.738)	(-48.741)	(-48.712)
LEV	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**
	(-2.343)	(-2.324)	(-2.351)	(-2.348)	(-2.363)	(-2.338)
Constant	-0.356***	-0.348***	-0.350***	-0.351***	-0.352***	-0.351***
	(-13.853)	(-13.534)	(-13.666)	(-13.696)	(-13.727)	(-13.476)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.300	0.300	0.300	0.300	0.300	0.300

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares

owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

In table 6.8, the dependent variable is the discretionary accruals which measured by modified Jones model. The result of regression has shown that the impact of the CEO whether as the director setting on the board on discretionary accruals is negatively significant at 10 percent level and the coefficient is -0.003, t-test value is -1.708. Moreover, in the model (5), the interaction variable CEO_top1_shl is positively significant at 1percent level, the coefficient is 0.018 and the t-test value is 2.766. However, the variable CEO_top1 is negatively significant at 1 percent level and the coefficient is -0.006. This result has shown that if the CEO is working for the largest shareholder, the firm tends to reduce their discretionary accrual. Moreover, this impact will be influenced by the largest shareholder's shareholding. When the largest shareholder's shareholding above 33 percent, the impact of whether the CEO is working for the largest shareholder on discretionary accruals will change to positive. However, the impact of the largest shareholder's shareholding (top1) on discretionary accruals is negatively significant at 10 percent level which is contradicted with this result.

In table 6.9, the dependent variable is the discretionary accruals which measured by Lu jiaoqiao model, and this study got the same result with table 3. The impact of the CEO whether as the director setting on the board on discretionary accruals is negatively significant at 5 percent level and the coefficient is -0.004, t-test value is -1.981. Moreover, in the model (5), the interaction variable CEO_top1_shl is positively significant at the 1 percent level, the coefficient is 0.021 and the t-test value is 3.193. However, the variable CEO_top1 is negatively significant at 1 percent level and the coefficient is -0.006, t-test value is -2.941. This result has shown that if the CEO is working for the largest shareholder, the firm tends to reduce their discretionary accrual, and this impact will be influenced by the largest shareholder's shareholding. When the largest

shareholder's shareholding above 28 percent, the impact of whether the CEO is working for the largest shareholder on discretionary accruals will change to positive. However, as same as table 3, in table 4 the impact of the largest shareholder's shareholding on discretionary accruals is negatively significant at 5 percent level which is contradicted with this result.

In table 6.10 and table 6.11, the dependent variable of table 6.10 is measured by the investment matched modified Jones model, and the dependent variable of table 6.11 is measured by investment matched Lujianqiao model. Different from table 6.8 and table 6.9, the impact of CEO's characteristics on firm's discretionary accruals are both not significant. Which meaning the firm's discretionary accruals will not be influenced by the CEO's characteristics. No matter the CEO is duality as the chairman or director setting on the board, or whether working shareholders, the firm's discretionary accruals will not be influenced by these factors.

In conclusion, from the results of table 6.8 and table 6.9, the resulting point that the firm's discretionary accruals will be impacted by the CEO's characteristics. If the CEO is as a director setting on the board, the firm will tend to reduce their discretionary accruals. Moreover, if the CEO is working for the largest shareholder, the firm will tend to reduce their discretionary accruals, but this impact will influence by the largest shareholder's shareholding. As the increase in the percentage of the largest shareholder's shareholding, the impact will decrease. If the percentage of the largest shareholder's shareholding is high enough, the impact of whether the CEO is working for the largest shareholder on the firm's discretionary accruals will change from negative to positive.

This result has shown that, as the increase in the percentage of shareholding, the largest

shareholder tends to increase the firm's discretionary accruals though CEO. However, this result is contradicted with the result of the influence of the percentage of the largest shareholder's shareholding on the firm's discretionary accruals. Moreover, based on the result of table 5.6 and table 5.7, the impact of whether the CEO is working for the largest shareholder on discretionary accruals is also not significant.

Therefore, this study use the absolute value of discretionary accruals to replace the dependent variables to test whether the CEO's characteristics have an influence on the level of discretionary accruals or not.

In table 6.12 to table 6.15, the dependent variable is the absolute value of firm's discretionary accruals which measured by modified Jones model, Lu jianqiao model, investment matched modified Jones model and investment matched Lu jianqiao model, respectively.

Table 6.12: Regression results on the relationship between absolute value of discretionary accruals (Modified Jones model) and CEO's characteristics

VARIABLES	Ab_MJ	Ab_MJ	Ab_MJ	Ab_MJ	Ab_MJ	Ab_MJ
CEO_duality	0.007***					0.007***
	(3.045)					(3.089)
CEO_director		0.001				0.001
		(0.513)				(0.247)
CEO_top10			-0.000			-0.003
			(-0.020)			(-0.795)
CEO_top1				0.000	0.001	0.003
				(0.214)	(0.491)	(0.671)
CEOtop1shl					-0.004	-0.004
					(-0.453)	(-0.425)
TOP1	-0.032***	-0.033***	-0.033***	-0.033***	-0.032***	-0.031***
	(-6.057)	(-6.267)	(-6.258)	(-6.262)	(-5.564)	(-5.404)
BSIZE	-0.002***	-0.003***	-0.003***	-0.003***	-0.003***	-0.002***
	(-3.705)	(-3.938)	(-3.911)	(-3.909)	(-3.908)	(-3.703)
BSHL	0.043**	0.039*	0.039*	0.039*	0.039*	0.042**
	(2.005)	(1.839)	(1.815)	(1.830)	(1.836)	(1.978)
IND	0.002	0.002	0.002	0.002	0.002	0.002
	(0.901)	(0.961)	(0.933)	(0.929)	(0.938)	(0.949)
SOE	0.004	0.003	0.003	0.003	0.003	0.004
	(0.837)	(0.693)	(0.704)	(0.706)	(0.694)	(0.793)
MSHL	-0.031	-0.008	-0.007	-0.007	-0.007	-0.031
	(-0.670)	(-0.182)	(-0.151)	(-0.155)	(-0.154)	(-0.657)
ROA	-0.098***	-0.098***	-0.098***	-0.098***	-0.098***	-0.098***
	(-8.561)	(-8.592)	(-8.583)	(-8.586)	(-8.587)	(-8.549)
LNA	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(-7.303)	(-7.476)	(-7.433)	(-7.454)	(-7.449)	(-7.196)
CFO	-0.112***	-0.112***	-0.112***	-0.112***	-0.112***	-0.112***
	(-11.216)	(-11.251)	(-11.249)	(-11.252)	(-11.253)	(-11.210)
LEV	0.000	0.000	0.000	0.000	0.000	0.000
	(0.465)	(0.462)	(0.469)	(0.466)	(0.459)	(0.457)
Constant	0.203***	0.207***	0.208***	0.208***	0.207***	0.202***
	(14.161)	(14.346)	(14.474)	(14.490)	(14.451)	(13.865)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.092	0.092	0.092	0.092	0.092	0.092

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.13: Regression results on the relationship between absolute value of discretionary accruals (LJQ model) and CEO's characteristics

VARIABLES	Ab_Lu	Ab_Lu	Ab_Lu	Ab_Lu	Ab_Lu	Ab_Lu
CEO_duality	0.006***					0.006***
	(2.847)					(2.825)
CEO_director		0.002				0.001
		(0.597)				(0.311)
CEO_top10			0.000			-0.002
			(0.234)			(-0.455)
CEO_top1				0.001	0.002	0.002
				(0.343)	(0.583)	(0.478)
CEOtop1shl					-0.004	-0.004
					(-0.472)	(-0.450)
TOP1	-0.031***	-0.032***	-0.032***	-0.032***	-0.031***	-0.030***
	(-5.996)	(-6.195)	(-6.185)	(-6.192)	(-5.493)	(-5.328)
BSIZE	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-3.484)	(-3.711)	(-3.675)	(-3.674)	(-3.673)	(-3.492)
BSHL	0.042**	0.039*	0.038*	0.039*	0.039*	0.042**
	(1.980)	(1.830)	(1.819)	(1.825)	(1.832)	(1.970)
IND	0.001	0.002	0.001	0.001	0.001	0.002
	(0.821)	(0.883)	(0.844)	(0.844)	(0.853)	(0.862)
SOE	0.003	0.003	0.003	0.003	0.003	0.003
	(0.709)	(0.572)	(0.590)	(0.587)	(0.575)	(0.674)
MSHL	-0.027	-0.007	-0.005	-0.005	-0.005	-0.027
	(-0.592)	(-0.143)	(-0.115)	(-0.113)	(-0.111)	(-0.591)
ROA	-0.111***	-0.111***	-0.111***	-0.111***	-0.111***	-0.111***
	(-9.768)	(-9.799)	(-9.793)	(-9.794)	(-9.795)	(-9.762)
LNA	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(-7.537)	(-7.703)	(-7.680)	(-7.690)	(-7.685)	(-7.456)
CFO	-0.092***	-0.093***	-0.093***	-0.093***	-0.093***	-0.092***
	(-9.346)	(-9.379)	(-9.380)	(-9.382)	(-9.384)	(-9.342)
LEV	0.000	0.000	0.000	0.000	0.000	0.000
	(1.142)	(1.138)	(1.144)	(1.142)	(1.134)	(1.133)
Constant	0.203***	0.206***	0.207***	0.207***	0.207***	0.202***
	(14.235)	(14.391)	(14.548)	(14.554)	(14.515)	(13.952)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.090	0.089	0.089	0.089	0.089	0.090

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.14: Regression results on the relationship between absolute value of discretionary accruals (Investment matched MJ model) and CEO's characteristics

VARIABLES	Ab_MJinv	Ab_MJinv	Ab_MJinv	Ab_MJinv	Ab_MJinv	Ab_MJinv
CEO_duality	0.010***					0.009**
	(2.610)					(2.373)
CEO_director		0.000				-0.002
		(0.097)				(-0.382)
CEO_top10			0.004			0.006
			(1.406)			(0.877)
CEO_top1				0.003	0.012**	0.005
				(1.066)	(2.367)	(0.615)
CEOtop1shl					-0.034**	-0.034**
					(-2.160)	(-2.173)
TOP1	-0.079***	-0.081***	-0.081***	-0.081***	-0.073***	-0.071***
	(-9.034)	(-9.214)	(-9.213)	(-9.240)	(-7.620)	(-7.377)
BSIZE	-0.003***	-0.004***	-0.004***	-0.004***	-0.004***	-0.003***
	(-3.034)	(-3.209)	(-3.201)	(-3.202)	(-3.199)	(-2.997)
BSHL	0.143***	0.137***	0.140***	0.139***	0.140***	0.145***
	(4.007)	(3.853)	(3.937)	(3.911)	(3.941)	(4.065)
IND	0.000	0.000	0.000	0.000	0.000	0.000
	(0.062)	(0.095)	(0.050)	(0.069)	(0.113)	(0.052)
SOE	0.015*	0.014*	0.014*	0.014*	0.014*	0.015*
	(1.865)	(1.749)	(1.782)	(1.758)	(1.703)	(1.845)
MSHL	0.141*	0.176**	0.172**	0.175**	0.175**	0.141*
	(1.817)	(2.286)	(2.242)	(2.277)	(2.284)	(1.816)
ROA	0.139***	0.139***	0.139***	0.139***	0.139***	0.139***
	(7.298)	(7.270)	(7.249)	(7.256)	(7.253)	(7.283)
LNA	0.005***	0.005***	0.005***	0.005***	0.005***	0.005***
	(4.320)	(4.187)	(4.044)	(4.073)	(4.094)	(4.240)
CFO	-0.321***	-0.322***	-0.322***	-0.322***	-0.322***	-0.322***
	(-19.303)	(-19.330)	(-19.347)	(-19.346)	(-19.357)	(-19.315)
LEV	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-3.640)	(-3.635)	(-3.650)	(-3.649)	(-3.683)	(-3.672)
Constant	0.059**	0.065***	0.067***	0.067***	0.064***	0.059**
	(2.446)	(2.676)	(2.801)	(2.778)	(2.672)	(2.430)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.074	0.073	0.073	0.073	0.074	0.074

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.15: Regression results on the relationship between absolute value of discretionary accruals (Investment matched LJQ model) and CEO's characteristics

VARIABLES	Ab_Luinv	Ab_Luinv	Ab_Luinv	Ab_Luinv	Ab_Luinv	Ab_Luinv
CEO_duality	0.009**					0.008**
	(2.462)					(2.174)
CEO_director		0.001				-0.001
		(0.204)				(-0.285)
CEO_top10			0.005			0.007
			(1.585)			(0.986)
CEO_top1				0.004	0.012**	0.005
				(1.217)	(2.398)	(0.558)
CEOtop1shl					-0.032**	-0.033**
					(-2.084)	(-2.099)
TOP1	-0.079***	-0.080***	-0.080***	-0.081***	-0.073***	-0.071***
	(-9.037)	(-9.209)	(-9.207)	(-9.238)	(-7.647)	(-7.412)
BSIZE	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-2.932)	(-3.106)	(-3.088)	(-3.089)	(-3.086)	(-2.905)
BSHL	0.144***	0.139***	0.142***	0.141***	0.142***	0.146***
	(4.049)	(3.909)	(4.000)	(3.971)	(4.001)	(4.120)
IND	0.000	0.000	0.000	0.000	0.000	0.000
	(0.094)	(0.131)	(0.075)	(0.096)	(0.138)	(0.082)
SOE	0.014*	0.013	0.013*	0.013*	0.013	0.014*
	(1.756)	(1.644)	(1.683)	(1.656)	(1.603)	(1.739)
MSHL	0.143*	0.175**	0.171**	0.174**	0.175**	0.143*
	(1.849)	(2.287)	(2.243)	(2.283)	(2.289)	(1.844)
ROA	0.132***	0.131***	0.131***	0.131***	0.131***	0.131***
	(6.926)	(6.898)	(6.876)	(6.883)	(6.880)	(6.905)
LNA	0.005***	0.004***	0.004***	0.004***	0.004***	0.005***
	(4.091)	(3.963)	(3.807)	(3.839)	(3.859)	(3.988)
CFO	-0.307***	-0.307***	-0.308***	-0.308***	-0.308***	-0.307***
	(-18.509)	(-18.536)	(-18.555)	(-18.554)	(-18.565)	(-18.524)
LEV	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(-3.228)	(-3.225)	(-3.240)	(-3.240)	(-3.272)	(-3.262)
Constant	0.061**	0.066***	0.069***	0.069***	0.066***	0.062**
	(2.553)	(2.755)	(2.906)	(2.881)	(2.779)	(2.546)
Observations	10,303	10,303	10,303	10,303	10,303	10,303
Adj. R-squared	0.070	0.070	0.070	0.070	0.070	0.070

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

In table 6.12, the dependent variable is the absolute value of discretionary accruals measured by modified Jones model. The impact of whether the CEO is duality as the chairman on the firm's discretionary accruals is positive and significant at 1 percent level. The coefficient is 0.007 and the t-test value is 3.045. The influence of whether the CEO is duality as a director setting on the board is positive but not significant. Moreover, the impact of whether the CEO is working for the largest shareholder is also not significant. The result has shown that if the CEO is duality as the chairman, the firm tends to do more earnings manipulation.

In table 6.13, the dependent variable is the absolute value of discretionary accruals measured by Lu jianqiao model. The result is as same as table 6.13, the impact of whether the CEO is duality as the chairman on firm's discretionary accruals is positively significant at 1 percent level and the coefficient is 0.006, t-test value is 2.847. The impact of CEO_director, CEO_top10, CEO_top1 and CEO_top1_shl on discretionary accruals are not significant.

In table 6.14, the dependent variable is the absolute value of discretionary accruals which is measured by investment matched modified Jones model. The impact of whether the CEO is duality as the chairman on the firm's discretionary accruals is positively significant at 1 percent level and the coefficient is 0.006, t-test value is 2.847. in the model (5), the impact of whether the CEO is working for the largest shareholder on firm's discretionary accruals is positively significant at 5 percent level and the coefficient is 0.012, t-test value is 2.367. This result has shown that if the CEO is working for the largest shareholder, the firm tends to increase their discretionary accrual. Moreover, this impact will be influenced by the percentage of the largest shareholder's shareholding. The significant level of the interaction variable CEO_top1_shl is

negatively at a 5 percent level, the coefficient is -0.034 and t-test value is -2.160. This result meaning when the largest shareholder's shareholding above 35 percent, the impact of whether the CEO is working for the largest shareholder on discretionary accruals will change from positive to negative, Moreover, the impact of the largest shareholder's shareholding (top1) on discretionary accruals is negatively significant at 1 percent level, the coefficient is -0.073 and t-test value is -7.620. Thus, the result is in accordance.

In table 6.15, the dependent variable is the absolute value of discretionary accruals which is measured by the investment matched Lu jianqiao model. The impact of whether the CEO is duality as the chairman on the firm's discretionary accruals is positively significant at 1 percent level and the coefficient is 0.009, t-test value is 2.462. in the model (5), the impact of whether the CEO is working for the largest shareholder on firm's discretionary accruals is positively significant at 5 percent level and the coefficient is 0.012, t-test value is 2.398. This result has shown that if the CEO is working for the largest shareholder, the firm tends to increase their discretionary accrual. Moreover, this impact will be influenced by the percentage of the largest shareholder's shareholding. The significant level of the interaction variable CEO_top1_shl is negatively at a 5 percent level, the coefficient is -0.032 and t-test value is -2.084. This result meaning when the largest shareholder's shareholding above 37.5 percent, the impact of whether the CEO is working for the largest shareholder on discretionary accruals will change from positive to negative, Moreover, the impact of the largest shareholder's shareholding (top1) on discretionary accruals is negatively significant at 1 percent level, the coefficient is -0.073 and t-test value is -7.647. Thus, the result is also in accordance.

In conclusion, from the results of table 6.14 and table 6.15, the resulting point that the firm's discretionary accruals will be impacted by the CEO's characteristics. If the CEO is duality as a chairman, the firm will tend to increase the level of their discretionary accruals. Moreover, if the CEO is working for the largest shareholder, the firm will tend to increase the level of their discretionary accruals, but this impact will influence by the percentage of the largest shareholder's shareholding. As the increase in the percentage of the largest shareholder's shareholding, the impact will decrease. If the percentage of the largest shareholder's shareholding is high enough, the impact of whether the CEO is working for the largest shareholder on the level of firm's discretionary accruals will change from positive to negative.

6.5.2 Real activity earnings management

In the next section, this study use abnormal real earnings as the dependent variable to test whether the financial director has helped the firm to manipulate earnings through earnings or not. From Table 6.16 to table 6.23 are results of the regression between the firm's abnormal real earnings management and financial director's characteristics. In table 6.16 to table 6.19, the dependent variable is the abnormal cash flow from operating, the abnormal cost of production, the abnormal discretionary expenditure, and the abnormal real earnings, respectively. As same as discretionary accruals, from table 6.10 to table 6.23, the dependent variable is the absolute value of the abnormal cash flow from operating, the abnormal cost of production, the abnormal discretionary expenditure, and the abnormal real earnings, respectively.

Table 6.16: Regression results on the relationship between abnormal cash flow from operating and CEO's characteristics

VARIABLES	Real_CFO	Real_CFO	Real_CFO	Real_CFO	Real_CFO	Real_CFO
CEO_duality	0.002					0.001
	(1.313)					(1.008)
CEO_director		-0.001				-0.002
		(-0.638)				(-1.072)
CEO_top10			0.002*			0.004
			(1.869)			(1.583)
CEO_top1				0.001	0.003*	-0.001
				(1.331)	(1.654)	(-0.259)
CEOtop1shl					-0.006	-0.006
					(-1.072)	(-1.108)
TOP1	-0.013***	-0.014***	-0.014***	-0.014***	-0.012***	-0.012***
	(-4.300)	(-4.382)	(-4.397)	(-4.432)	(-3.650)	(-3.446)
BSIZE	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.859)	(-0.898)	(-0.936)	(-0.937)	(-0.937)	(-0.787)
BSHL	0.005	0.004	0.006	0.005	0.006	0.006
	(0.394)	(0.302)	(0.432)	(0.394)	(0.402)	(0.463)
IND	0.000	0.000	0.000	0.000	0.000	0.000
	(0.102)	(0.080)	(0.064)	(0.090)	(0.116)	(0.007)
SOE	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***
	(-3.552)	(-3.596)	(-3.569)	(-3.602)	(-3.630)	(-3.493)
MSHL	-0.006	0.002	-0.001	0.000	0.000	-0.005
	(-0.196)	(0.051)	(-0.032)	(0.002)	(0.009)	(-0.164)
ROA	-0.057***	-0.057***	-0.057***	-0.057***	-0.057***	-0.057***
	(-8.514)	(-8.512)	(-8.554)	(-8.545)	(-8.547)	(-8.520)
LNA	-0.001**	-0.001**	-0.001***	-0.001***	-0.001**	-0.001**
	(-2.403)	(-2.458)	(-2.636)	(-2.585)	(-2.573)	(-2.519)
CFO	1.054***	1.054***	1.054***	1.054***	1.054***	1.054***
	(179.248)	(179.234)	(179.223)	(179.209)	(179.209)	(179.219)
LEV	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(-2.341)	(-2.330)	(-2.362)	(-2.359)	(-2.376)	(-2.354)
Constant	-0.010	-0.008	-0.008	-0.008	-0.009	-0.008
	(-1.169)	(-0.964)	(-0.911)	(-0.949)	(-1.002)	(-0.936)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.777	0.777	0.777	0.777	0.777	0.777

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm;**ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash

flow from operating

Table 6.17: Regression results on the relationship between abnormal cost of production and CEO's characteristics

VARIABLES	Real_Pord	Real_Pord	Real_Pord	Real_Pord	Real_Pord	Real_Pord
CEO_duality	0.011**					0.010*
	(2.073)					(1.878)
CEO_director		0.002				-0.000
		(0.287)				(-0.062)
CEO_top10			0.004			-0.013
			(0.977)			(-1.324)
CEO_top1				0.007	0.015**	0.025**
				(1.621)	(2.042)	(2.156)
CEOtop1shl					-0.030	-0.029
					(-1.339)	(-1.299)
TOP1	0.004	0.002	0.003	0.002	0.009	0.010
	(0.338)	(0.196)	(0.202)	(0.156)	(0.672)	(0.706)
BSIZE	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.099)	(-0.257)	(-0.230)	(-0.223)	(-0.223)	(-0.091)
BSHL	0.041	0.035	0.038	0.040	0.041	0.044
	(0.752)	(0.644)	(0.694)	(0.726)	(0.736)	(0.789)
IND	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
	(-1.532)	(-1.491)	(-1.535)	(-1.540)	(-1.508)	(-1.491)
SOE	0.008	0.007	0.007	0.007	0.007	0.007
	(0.708)	(0.611)	(0.641)	(0.632)	(0.595)	(0.628)
MSHL	-0.045	-0.006	-0.007	-0.007	-0.006	-0.037
	(-0.374)	(-0.052)	(-0.063)	(-0.056)	(-0.049)	(-0.305)
ROA	-0.586***	-0.587***	-0.587***	-0.587***	-0.587***	-0.586***
	(-21.695)	(-21.712)	(-21.724)	(-21.735)	(-21.739)	(-21.708)
LNA	0.023***	0.023***	0.023***	0.023***	0.023***	0.023***
	(14.305)	(14.207)	(14.065)	(14.006)	(14.020)	(14.141)
CFO	-0.641***	-0.641***	-0.642***	-0.642***	-0.642***	-0.641***
	(-27.088)	(-27.109)	(-27.120)	(-27.132)	(-27.134)	(-27.106)
LEV	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	(8.095)	(8.090)	(8.083)	(8.071)	(8.050)	(8.050)
Constant	-0.391***	-0.385***	-0.382***	-0.380***	-0.382***	-0.390***
	(-11.432)	(-11.236)	(-11.184)	(-11.137)	(-11.191)	(-11.251)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.213	0.213	0.213	0.213	0.213	0.213

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table6.18: Regression results on the relationship between abnormal discretionary expenditure and CEO's characteristics

VARIABLES	Real_Disexp	Real_Disexp	Real_Disexp	Real_Disexp	Real_Disexp	Real_Disexp
CEO_duality	0.005**					0.004*
	(2.259)					(1.793)
CEO_director		0.005*				0.004
		(1.747)				(1.281)
CEO_top10			0.003			-0.008*
			(1.538)			(-1.830)
CEO_top1				0.005**	0.015***	0.022***
				(2.455)	(4.931)	(4.246)
CEOtop1shl					-0.042***	-0.041***
					(-4.318)	(-4.250)
TOP1	-0.037***	-0.038***	-0.037***	-0.038***	-0.028***	-0.028***
	(-6.713)	(-6.911)	(-6.876)	(-6.944)	(-4.682)	(-4.692)
BSIZE	0.000	0.000	0.000	0.000	0.000	0.000
	(0.481)	(0.203)	(0.343)	(0.353)	(0.354)	(0.376)
BSHL	-0.030	-0.032	-0.031	-0.030	-0.029	-0.027
	(-1.251)	(-1.330)	(-1.285)	(-1.242)	(-1.211)	(-1.144)
IND	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-1.311)	(-1.188)	(-1.329)	(-1.335)	(-1.231)	(-1.123)
SOE	-0.007	-0.008	-0.008	-0.008	-0.008*	-0.008*
	(-1.449)	(-1.591)	(-1.513)	(-1.529)	(-1.648)	(-1.667)
MSHL	0.290***	0.305***	0.308***	0.308***	0.309***	0.294***
	(5.545)	(5.894)	(5.949)	(5.963)	(5.994)	(5.618)
ROA	0.083***	0.082***	0.082***	0.082***	0.082***	0.082***
	(7.042)	(6.988)	(6.997)	(6.984)	(6.983)	(6.989)
LNA	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***
	(8.467)	(8.324)	(8.184)	(8.100)	(8.154)	(8.287)
CFO	0.080***	0.079***	0.079***	0.079***	0.079***	0.079***
	(7.748)	(7.716)	(7.701)	(7.686)	(7.690)	(7.717)
LEV	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001
	(-1.074)	(-1.097)	(-1.091)	(-1.109)	(-1.176)	(-1.194)
Constant	-0.118***	-0.118***	-0.113***	-0.112***	-0.115***	-0.121***
	(-7.901)	(-7.876)	(-7.589)	(-7.523)	(-7.737)	(-8.023)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.037	0.037	0.037	0.037	0.039	0.039

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

Table6.19: Regression results on the relationship between abnormal real earnings and CEO's characteristics

VARIABLES	Real_EM	Real_EM	Real_EM	Real_EM	Real_EM	Real_EM
CEO_duality	0.017***					0.016**
	(2.825)					(2.505)
CEO_director		0.005				0.001
		(0.678)				(0.181)
CEO_top10			0.007			-0.021*
			(1.445)			(-1.830)
CEO_top1				0.012**	0.029***	0.046***
				(2.345)	(3.415)	(3.333)
CEOtop1shl					-0.066**	-0.064**
					(-2.511)	(-2.452)
TOP1	-0.045***	-0.048***	-0.048***	-0.049***	-0.033**	-0.032**
	(-3.065)	(-3.270)	(-3.257)	(-3.323)	(-2.063)	(-2.015)
BSIZE	-0.000	-0.001	-0.001	-0.001	-0.001	-0.000
	(-0.187)	(-0.423)	(-0.365)	(-0.355)	(-0.355)	(-0.198)
BSHL	0.011	0.002	0.007	0.009	0.011	0.016
	(0.173)	(0.034)	(0.101)	(0.145)	(0.163)	(0.240)
IND	-0.008	-0.007	-0.008	-0.008	-0.007	-0.007
	(-1.558)	(-1.486)	(-1.566)	(-1.572)	(-1.512)	(-1.474)
SOE	-0.014	-0.016	-0.016	-0.016	-0.017	-0.016
	(-1.061)	(-1.201)	(-1.151)	(-1.166)	(-1.234)	(-1.196)
MSHL	0.242*	0.302**	0.302**	0.303**	0.305**	0.255*
	(1.708)	(2.159)	(2.158)	(2.169)	(2.185)	(1.800)
ROA	-0.552***	-0.553***	-0.554***	-0.554***	-0.554***	-0.553***
	(-17.371)	(-17.400)	(-17.412)	(-17.429)	(-17.438)	(-17.406)
LNA	0.027***	0.027***	0.027***	0.027***	0.027***	0.027***
	(14.386)	(14.239)	(14.062)	(13.981)	(14.011)	(14.187)
CFO	0.479***	0.478***	0.478***	0.477***	0.477***	0.478***
	(17.206)	(17.165)	(17.149)	(17.136)	(17.139)	(17.179)
LEV	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	(5.948)	(5.938)	(5.931)	(5.914)	(5.876)	(5.874)
Constant	-0.502***	-0.494***	-0.487***	-0.484***	-0.489***	-0.502***
	(-12.469)	(-12.243)	(-12.116)	(-12.051)	(-12.166)	(-12.323)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.095	0.094	0.094	0.094	0.095	0.095

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

In table 6.16, the dependent variable is abnormal cash flow from operating. The result has shown that the abnormal cash flow from operating is related negative with the CEO's duality characteristics. The impact of whether the CEO is working for shareholders on abnormal cash flow from operating is positive significant at the 10 percent level, the coefficient is 0.002 and the t-test value is 1.869. When the CEO is working for the top10 shareholders, the firm tends to increase its abnormal cash flow from operating. However, the impact of whether the CEO is working for the largest shareholder is positive but not significant.

In table6.17, the dependent variable is the abnormal cost of production. The result has shown that the abnormal cost of production is positively related to whether the CEO is duality as the chairman. The impact of whether the CEO is duality as the chairman on the abnormal cost of production is positively significant at 5 percent level, the coefficient is 0.011 and the t-test value is 2.073. Firms tend to increase their abnormal cost of production if the CEO is duality as the chairman.

In table 6.18, the dependent variable is abnormal discretionary expenditure. The result has a point that the abnormal discretionary expenditure is positively related to the CEO's characteristics. The impact of whether the CEO is duality as the chairman on abnormal discretionary expenditure is positively significant at 5 percent level, the coefficient is 0.005 and the t-test value is 2.259. The impact of whether the CEO is duality as a director setting in the board on abnormal discretionary expenditure is positively significant at 10 percent level and the coefficient is 0.005, t-test value is 1.747. Moreover, if the CEO is working for the largest shareholder, the firm tends to increase its abnormal discretionary expenditure, the significant level is 5 percent and the coefficient is 0.005, t-test value is 2.455. According to the model (5), the impact of whether the CEO is working for the

largest shareholder on firm's abnormal discretionary expenditure is positively significant at 1 percent level and the coefficient is 0.015, t-test value is 4.931. The significant level of the interaction variable CEO_top1_shl is negatively at 1 percent level, the coefficient is -0.042 and t-test value is -4.318. This result meaning when the largest shareholder's shareholding above 35.7 percent, the impact of whether the CEO is working for the largest shareholder on abnormal discretionary expenditure will change from positive to negative, Moreover, the impact of the largest shareholder's shareholding (top1) on abnormal discretionary expenditure is negatively significant at 1 percent level, the coefficient is -0.028 and t-test value is -4.682. The result is in accordance.

In table 6.19, the dependent variable is abnormal real earnings. The result has a point that the abnormal real earnings are positively related to the CEO's characteristics. The impact of whether the CEO is duality as the chairman on abnormal real earnings is positively significant at 1 percent level, the coefficient is 0.017 and the t-test value is 2.825. Moreover, if the CEO is working for the largest shareholder, the firm tends to increase its abnormal real earnings, the significant level is 5 percent and the coefficient is 0.012, t-test value is 2.345. According to the model (5), the impact of whether the CEO is working for the largest shareholder on firm's abnormal real earnings is positively significant at 1 percent level and the coefficient is 0.029, t-test value is 3.415. The significant level of the interaction variable CEO_top1_shl is negatively at the 5 percent level, the coefficient is -0.066 and t-test value is -2.511. This result meaning when the largest shareholder's shareholding above 44 percent, the impact of whether the CEO is working for the largest shareholder on abnormal real earnings will change from positive to negative, Moreover, the impact of the largest shareholder's shareholding (top1) on abnormal real earnings is negatively

significant at 1 percent level, the coefficient is -0.033 and t-test value is -2.063. Therefore, the result is in accordance.

Based on table 6.16 to table 6.19 the firm's abnormal real earnings management will be impacted by the CEO's characteristics. The abnormal real earnings will be positively related to whether the CEO is duality as the chairman and whether the CEO is working for the largest shareholder. Moreover, the impact of whether the CEO is working for the largest shareholder on abnormal real earnings will be affected by the percentage of the largest shareholder's shareholding.

Table 6.20: Regression results on the relationship between the absolute value of abnormal cash flow from operating and CEO's characteristics

VARIABLES	Ab_CFO	Ab_CFO	Ab_CFO	Ab_CFO	Ab_CFO	Ab_CFO
CEO_duality	0.004**					0.003*
	(1.966)					(1.771)
CEO_director		0.001				0.001
		(0.592)				(0.278)
CEO_top10			0.001			-0.003
			(0.857)			(-0.812)
CEO_top1				0.002	0.004*	0.006
				(1.246)	(1.720)	(1.538)
CEOtop1shl					-0.010	-0.009
					(-1.217)	(-1.182)
TOP1	-0.011**	-0.012***	-0.011***	-0.012***	-0.009*	-0.009*
	(-2.450)	(-2.596)	(-2.584)	(-2.619)	(-1.926)	(-1.862)
BSIZE	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.946)	(-1.119)	(-1.073)	(-1.068)	(-1.068)	(-0.965)
BSHL	0.052***	0.050**	0.051***	0.051***	0.051***	0.052***
	(2.647)	(2.556)	(2.587)	(2.606)	(2.615)	(2.680)
IND	0.001	0.001	0.001	0.001	0.001	0.001
	(0.763)	(0.816)	(0.760)	(0.760)	(0.789)	(0.809)
SOE	0.007	0.006	0.006	0.006	0.006	0.006
	(1.601)	(1.502)	(1.536)	(1.527)	(1.493)	(1.530)
MSHL	-0.045	-0.032	-0.032	-0.032	-0.031	-0.043
	(-1.045)	(-0.764)	(-0.757)	(-0.749)	(-0.742)	(-1.007)
ROA	0.155***	0.155***	0.155***	0.155***	0.155***	0.155***
	(16.184)	(16.151)	(16.150)	(16.145)	(16.143)	(16.159)
LNA	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-5.646)	(-5.762)	(-5.806)	(-5.842)	(-5.828)	(-5.673)
CFO	0.023***	0.023***	0.022***	0.022***	0.022***	0.023***
	(2.709)	(2.684)	(2.675)	(2.668)	(2.667)	(2.693)
LEV	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(5.288)	(5.280)	(5.278)	(5.270)	(5.251)	(5.249)
Constant	0.128***	0.129***	0.131***	0.131***	0.130***	0.127***
	(10.540)	(10.621)	(10.807)	(10.835)	(10.760)	(10.364)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.065	0.064	0.064	0.065	0.065	0.065

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board.**CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.21: Regression results on the relationship between the absolute value of abnormal cost of production and CEO's characteristics

VARIABLES	Ab_prod	Ab_prod	Ab_prod	Ab_prod	Ab_prod	Ab_prod
CEO_duality	0.016***					0.016***
	(3.910)					(3.975)
CEO_director		0.000				-0.002
		(0.021)				(-0.361)
CEO_top10			0.000			-0.024***
			(0.059)			(-3.200)
CEO_top1				0.005	0.013**	0.033***
				(1.401)	(2.268)	(3.639)
CEOtop1shl					-0.030*	-0.029*
					(-1.784)	(-1.695)
TOP1	0.004	0.002	0.002	0.001	0.009	0.009
	(0.430)	(0.172)	(0.173)	(0.133)	(0.826)	(0.881)
BSIZE	0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(0.223)	(-0.036)	(-0.035)	(-0.024)	(-0.023)	(0.273)
BSHL	0.009	-0.000	-0.000	0.003	0.003	0.008
	(0.211)	(-0.009)	(-0.006)	(0.069)	(0.082)	(0.184)
IND	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004
	(-1.246)	(-1.199)	(-1.203)	(-1.229)	(-1.186)	(-1.160)
SOE	0.030***	0.029***	0.029***	0.029***	0.029***	0.029***
	(3.415)	(3.243)	(3.245)	(3.256)	(3.207)	(3.267)
MSHL	-0.008	0.051	0.051	0.049	0.050	0.003
	(-0.086)	(0.557)	(0.557)	(0.542)	(0.552)	(0.028)
ROA	0.060***	0.059***	0.059***	0.059***	0.058***	0.060***
	(2.883)	(2.844)	(2.844)	(2.824)	(2.821)	(2.887)
LNA	-0.006***	-0.006***	-0.006***	-0.006***	-0.006***	-0.006***
	(-4.570)	(-4.767)	(-4.753)	(-4.878)	(-4.859)	(-4.503)
CFO	-0.183***	-0.184***	-0.184***	-0.184***	-0.184***	-0.183***
	(-10.082)	(-10.122)	(-10.122)	(-10.142)	(-10.144)	(-10.095)
LEV	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***
	(7.481)	(7.478)	(7.477)	(7.458)	(7.430)	(7.439)
Constant	0.269***	0.279***	0.279***	0.282***	0.279***	0.268***
	(10.273)	(10.601)	(10.659)	(10.758)	(10.655)	(10.081)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.202	0.200	0.200	0.201	0.201	0.202

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board.**CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.22: Regression results on the relationship between the absolute value of abnormal discretionary expenditure and CEO's characteristics

VARIABLES	Ab_Disexp	Ab_Disexp	Ab_Disexp	Ab_Disexp	Ab_Disexp	Ab_Disexp
CEO_duality	0.006***					0.006***
	(3.545)					(3.173)
CEO_director		0.004**				0.003
		(1.962)				(1.468)
CEO_top10			0.002			-0.012***
			(1.236)			(-3.609)
CEO_top1				0.004***	0.008***	0.017***
				(2.857)	(3.220)	(4.494)
CEOtop1shl					-0.014*	-0.013*
					(-1.887)	(-1.772)
TOP1	-0.003	-0.004	-0.004	-0.004	-0.001	-0.001
	(-0.766)	(-1.041)	(-1.001)	(-1.081)	(-0.249)	(-0.306)
BSIZE	0.001	0.000	0.000	0.000	0.000	0.000
	(1.054)	(0.674)	(0.829)	(0.844)	(0.845)	(0.946)
BSHL	0.014	0.011	0.012	0.013	0.014	0.015
	(0.778)	(0.635)	(0.653)	(0.738)	(0.752)	(0.844)
IND	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.671)	(-0.522)	(-0.666)	(-0.688)	(-0.642)	(-0.493)
SOE	0.017***	0.016***	0.016***	0.016***	0.016***	0.016***
	(4.343)	(4.142)	(4.217)	(4.215)	(4.162)	(4.125)
MSHL	0.122***	0.141***	0.144***	0.144***	0.144***	0.126***
	(3.087)	(3.607)	(3.678)	(3.679)	(3.691)	(3.180)
ROA	0.088***	0.088***	0.088***	0.088***	0.087***	0.088***
	(9.936)	(9.863)	(9.880)	(9.858)	(9.856)	(9.889)
LNA	-0.004***	-0.005***	-0.005***	-0.005***	-0.005***	-0.004***
	(-8.358)	(-8.582)	(-8.619)	(-8.773)	(-8.752)	(-8.451)
CFO	0.051***	0.051***	0.051***	0.050***	0.050***	0.051***
	(6.555)	(6.505)	(6.493)	(6.470)	(6.470)	(6.521)
LEV	0.000	0.000	0.000	0.000	0.000	0.000
	(0.670)	(0.644)	(0.657)	(0.630)	(0.601)	(0.578)
Constant	0.114***	0.115***	0.119***	0.120***	0.119***	0.112***
	(10.141)	(10.203)	(10.580)	(10.702)	(10.595)	(9.860)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.096	0.096	0.095	0.096	0.096	0.098

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board.**CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

Table 6.23: Regression results on the relationship between absolute value of abnormal real earnings and CEO's characteristics

VARIABLES	Ab_real	Ab_real	Ab_real	Ab_real	Ab_real	Ab_real
CEO_duality	0.019***					0.018***
	(4.333)					(4.033)
CEO_director		0.006				0.003
		(1.115)				(0.512)
CEO_top10			0.005			-0.026***
			(1.372)			(-3.109)
CEO_top1				0.010***	0.020***	0.041***
				(2.774)	(3.206)	(4.080)
CEOtop1shl					-0.036*	-0.034*
					(-1.931)	(-1.832)
TOP1	-0.006	-0.009	-0.009	-0.010	-0.001	-0.000
	(-0.538)	(-0.847)	(-0.825)	(-0.903)	(-0.068)	(-0.018)
BSIZE	-0.000	-0.001	-0.000	-0.000	-0.000	-0.000
	(-0.019)	(-0.386)	(-0.296)	(-0.282)	(-0.282)	(-0.048)
BSHL	0.016	0.006	0.009	0.012	0.013	0.019
	(0.351)	(0.139)	(0.189)	(0.262)	(0.276)	(0.399)
IND	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-0.620)	(-0.510)	(-0.610)	(-0.627)	(-0.580)	(-0.506)
SOE	0.040***	0.038***	0.039***	0.039***	0.038***	0.039***
	(4.123)	(3.906)	(3.965)	(3.958)	(3.904)	(3.948)
MSHL	0.052	0.118	0.120	0.120	0.121	0.063
	(0.508)	(1.171)	(1.193)	(1.197)	(1.208)	(0.618)
ROA	-0.039*	-0.041*	-0.041*	-0.041*	-0.041*	-0.040*
	(-1.725)	(-1.783)	(-1.783)	(-1.806)	(-1.809)	(-1.760)
LNA	-0.010***	-0.010***	-0.011***	-0.011***	-0.011***	-0.010***
	(-7.398)	(-7.640)	(-7.713)	(-7.845)	(-7.825)	(-7.468)
CFO	0.001	0.000	-0.000	-0.001	-0.001	0.001
	(0.065)	(0.011)	(-0.004)	(-0.026)	(-0.027)	(0.032)
LEV	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	(8.329)	(8.309)	(8.309)	(8.286)	(8.257)	(8.256)
Constant	0.365***	0.373***	0.379***	0.382***	0.379***	0.363***
	(12.639)	(12.864)	(13.162)	(13.269)	(13.156)	(12.428)
Observations	10,089	10,089	10,089	10,089	10,089	10,089
Adj. R-squared	0.138	0.137	0.137	0.137	0.138	0.139

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices. **CEO_duality:** that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's

cash flow from operating

From table 6.20to table 6.23, the dependent variable is the absolute value of abnormal cash flow from operating, the absolute value of the abnormal cost of production, the absolute value of abnormal discretionary expenditure, and the absolute value of abnormal real earnings, respectively.

In table 6.20, the dependent variable is the absolute value of abnormal cash flow from operating. The result has shown that if the CEO is duality as the chairman, the level of firm's abnormal cash flow from operating will increase. The significant level is 5 percent, the coefficient is 0.004, t-test value is 1.966.

In table 6.21, the dependent variable is the absolute value of the abnormal cost of production. The result is as same as table 16. The impact of whether the CEO is duality as the chairman on the level of abnormal cost of production is positively significant at 1 percent level, the coefficient is 0.016 and the t-test value is 3.910. Firms tend to increase the level of abnormal cost of production if the CEO is duality as the chairman.

In table 6.22, the dependent variable is the absolute value of abnormal discretionary expenditure. The result has a point that the abnormal discretionary expenditure is positively related to the CEO's characteristics. The impact of whether the CEO is duality as the chairman on the level of abnormal discretionary expenditure is positively significant at 1 percent level, the coefficient is 0.006 and the t-test value is 3.545. The impact of whether the CEO is duality as a director setting in the board on abnormal discretionary expenditure is positively significant at 5 percent level and the coefficient is 0.004, t-test value is 1.962.

Moreover, if the CEO is working for the largest shareholder, the firm tends to increase its

abnormal discretionary expenditure, the significant level is 1 percent and the coefficient is 0.004, t-test value is 2.857. According to the model (5), the impact of whether the CEO is working for the largest shareholder on firm's abnormal discretionary expenditure is positively significant at 1 percent level and the coefficient is 0.008, t-test value is 3.220. The significant level of the interaction variable CEO_top1_shl is negatively at the 10 percent level, the coefficient is -0.014 and t-test value is -1.887. This result meaning when the largest shareholder's shareholding above 57 percent, the impact of whether the CEO is working for the largest shareholder on abnormal discretionary expenditure will change from positive to negative. Moreover, the impact of the largest shareholder's shareholding (top1) on abnormal discretionary expenditure is negative but not significant.

In table 6.23, the dependent variable is the absolute value of abnormal real earnings. The result has a point that the level of abnormal real earnings is positive related to the CEO's characteristics. The impact of whether the CEO is duality as the chairman on abnormal real earnings is positively significant at 1 percent level, the coefficient is 0.019 and the t-test value is 4.333. Moreover, if the CEO is working for the largest shareholder, the firm tends to increase the level of abnormal real earnings, the significant level is 1 percent and the coefficient is 0.010, t-test value is 2.774. According to the model (5), the impact of whether the CEO is working for the largest shareholder on firm's abnormal real earnings is positively significant at 1 percent level and the coefficient is 0.020, t-test value is 3.206. The significant level of the interaction variable CEO_top1_shl is negatively at the 10 percent level, the coefficient is -0.036 and t-test value is -1.931. This result meaning when the largest shareholder's shareholding above 55 percent, the impact of whether the CEO is working for the largest shareholder on abnormal real earnings will change from positive to

negative. At last, the impact of the largest shareholder's shareholding (top1) on abnormal real earnings is negative but not significant.

6.5.3 OLS, FGLS, WLS test

Table 6.24: OLS, FGLS and WSL Regression of the relationship between CEO and earnings management

	Ab_mjinv						Ab_Luinv					
	OLS		FGLS		WLS		OLS		FGLS		WLS	
	Coef.	P>t	Coef.	P>z	Coef.	P>t	Coef.	P>t	Coef.	P>z	Coef.	P>t
CEO_top1	0.012	0.041	0.012	0.016	0.012	0.017	0.012	0.038	0.0121	0.016	0.013	0.010
CEOtop1shl	-0.034	0.031	-0.032	0.037	-0.039	0.037	-0.032	0.037	-0.0324	0.037	-0.040	0.032
TOP1	-0.073	0.000	-0.073	0.000	-0.087	0.000	-0.073	0.000	-0.0727	0.000	-0.087	0.000
BSIZE	-0.004	0.001	-0.003	0.002	-0.004	0.002	-0.003	0.002	-0.0034	0.002	-0.004	0.003
BSHL	0.140	0.003	0.142	0.000	0.083	0.002	0.142	0.002	0.1419	0.000	0.088	0.001
IND	0.000	0.906	0.000	0.890	0.001	0.819	0.000	0.884	0.0004	0.890	0.001	0.814
SOE	0.014	0.128	0.013	0.108	0.014	0.075	0.013	0.151	0.0129	0.108	0.011	0.140
MSHL	0.175	0.100	0.175	0.022	0.257	0.000	0.175	0.101	0.1746	0.022	0.250	0.000
ROA	0.139	0.000	0.131	0.000	0.037	0.029	0.131	0.000	0.1309	0.000	0.045	0.008
LNA	0.005	0.000	0.004	0.000	0.008	0.000	0.004	0.000	0.0044	0.000	0.008	0.000
CFO	-0.322	0.000	-0.308	0.000	-0.391	0.000	-0.308	0.000	-0.3078	0.000	-0.381	0.000
LEV	-0.003	0.001	-0.002	0.001	-0.006	0.000	-0.002	0.003	-0.0022	0.001	-0.006	0.000
_cons	0.012	0.028	0.012	0.016	0.012	0.017	0.012	0.038	0.0121	0.016	0.013	0.010

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices.**CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

Table 6.25: OLS, FGLS and WSL Regression of the relationship between CEO and real earnings management

	Real						Ab_Real					
	OLS		FGLS		WLS		OLS		FGLS		WLS	
	Coef.	P>t	Coef.	P>z	Coef.	P>t	Coef.	P>t	Coef.	P>z	Coef.	P>t
CEO_top1	0.029	0.002	0.029	0.001	0.008	0.424	0.020	0.004	0.020	0.001	0.020	0.001
CEOtop1shl	-0.066	0.014	-0.066	0.012	-0.055	0.095	-0.036	0.058	-0.036	0.053	-0.035	0.118
TOP1	-0.033	0.040	-0.033	0.039	0.052	0.008	-0.001	0.946	-0.001	0.946	0.004	0.792
BSIZE	-0.001	0.714	-0.001	0.722	-0.006	0.012	0.000	0.770	0.000	0.777	-0.003	0.106
BSHL	0.011	0.864	0.011	0.870	0.085	0.380	0.013	0.789	0.013	0.782	0.030	0.588
IND	-0.007	0.097	-0.007	0.130	-0.007	0.290	-0.002	0.525	-0.002	0.561	-0.002	0.637
SOE	-0.017	0.256	-0.017	0.216	0.043	0.009	0.038	0.000	0.038	0.000	0.063	0.000
MSHL	0.305	0.023	0.305	0.029	0.294	0.114	0.121	0.237	0.121	0.226	0.162	0.170
ROA	-0.554	0.000	-0.554	0.000	-0.579	0.000	-0.041	0.148	-0.041	0.070	0.010	0.690
LNA	0.027	0.000	0.027	0.000	0.052	0.000	-0.011	0.000	-0.011	0.000	-0.005	0.002
CFO	0.477	0.000	0.477	0.000	0.312	0.000	-0.001	0.983	-0.001	0.978	-0.046	0.028
LEV	0.007	0.000	0.007	0.000	0.005	0.000	0.007	0.000	0.007	0.000	0.007	0.000

T-test values are provided in bracket. Robust standard errors are provided in parentheses. The industry fixed effects and year fixed effects are controlled. Variables are defined as in Appendices.**CEO_top1:** represent that 1 is the CEO is working for the largest shareholder.**CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

This party is aiming to test the steady of the main result. Therefore, this party uses the OLS, FGLS and WLS to run the regression, respectively.

In table 6.24, this study uses the OLS, FGLS and WSL to regression the impact of the relationship between the CEO and the controlling shareholder on earnings management. It uses the investment matched modified Jones model, and investment matched Lu jianqiao model as the dependent variable, respectively. When it uses the absolute value of the investment matched modified Jones model as the dependent variable, the result of the impact of CEO_top1 on the company's earnings management is negatively significant at 5 per cent level by OLS. The coefficient of CEO_top1 is 0.012, and the p-value is 0.041. The result of the impact of CEOtop1shl on the company's earnings management is negatively significant at 5 per cent level by OLS. The coefficient of CEOtop1shl is -0.034, and the p-value is 0.031. Thus, the coefficient of the impact of whether the CEO is working for the controlling shareholder on earnings management is (0.012-0.034*top1shareholding), that when the controlling shareholder's shareholding at a low level, the CEO has a positive impact on the company's earnings management. As the increase of the controlling shareholder's shareholding, the effect of whether the CEO is working for the controlling shareholder on earnings management will change to negative.

As same as the OLS, when it is using the FGLS regression. The coefficient of the impact of whether the CEO is working for the controlling shareholder on earnings management is (0.012-0.032*top1shareholding). The p-value of CEO_top1 and

CEOtop1shl is 0.016 and 0.037, respectively. Moreover, when it is using the WLS regression. The coefficient of the impact of whether the CEO is working for the controlling shareholder on earnings management is (0.012-0.039*top1shareholding). The p-value of CEO_top1 and CEOtop1shl is 0.017 and 0.037, respectively.

When it uses the absolute value of the investment matched Lu jianqiao model as the dependent variable. The result of the effect on the company's earnings management is as same as the investment matched modified Jones model.

In table 6.25, this study uses the OLS, FGLS and WSL to regression the impact of the relationship between the CEO and the controlling shareholder on the real earnings management. It uses real earnings management and the absolute real earnings management as the dependent variable, respectively. When it uses the real earnings management as the dependent variable, the result of the impact of CEO_top1 on the company's earnings management is positive significant at 1 per cent level by OLS. The coefficient of CEO_top1 is 0.029, and the p-value is 0.002. The result of the impact of CEOtop1shl on the company's earnings management is negatively significant at 5 per cent level by OLS. The coefficient of CEOtop1shl is -0.066, and the p-value is 0.014. Thus, the coefficient of the impact of whether the CEO is working for the controlling shareholder on real earnings management is (0.029-0.066*top1's shareholding), that when the controlling shareholder's shareholding at a low level, the CEO has a positive impact on the company's real earnings management. As the increase of the controlling shareholder's shareholding,

the effect of whether the CEO is working for the controlling shareholder on earnings management will change to negative.

Compare with the OLS, when it is using the FGLS regression. The coefficient of the impact of whether the CEO is working for the controlling shareholder on earnings management is (0.029-0.066*top1shareholding). The p-value of CEO_top1 and CEOtop1shl is 0.00.01and 0.012, respectively. However, when it is using the WLS regression. The coefficient of the impact of whether the CEO is working for the controlling shareholder on real earnings management is not significant. The p-value of CEO_top1 and CEOtop1shl is 0.424 and 0.095, respectively.

As same as the real earnings management, when it uses the absolute value of the real earnings management as the dependent variable. The effect of whether the CEO is working for the controlling shareholder on earnings management is positive when the controlling shareholder's shareholding at a low level. And it will change to negative as the increase of the controlling shareholder's shareholding.

In conclusion, according to the FGLS and WLS test, the result of the effect of the relationship between the CEO and controlling shareholder on earnings management is steady.

6.5.4 Endogeneity and 2SLS, GMM

In order to eliminate the influence of endogeneity on regression results, 2SLS and GMM were used for robustness tests respectively

Table 6.25: OLS,2SLS and GMM Regression of the relationship between CEO and real earnings management

	Ab_mjinv			Ab_luinv		
VARIABLES	**OLS**	**2SLS**	**GMM**	**OLS**	**2SLS**	**GMM**
ceod1	0.006	0.029	0.029	0.006	0.044	0.044
	(0.871)	(0.192)	(0.192)	(0.804)	(0.286)	(0.286)
ceotop1share	-0.021**	-0.022**	-0.022**	-0.019*	-0.029*	-0.029*
	(-2.151)	(-2.248)	(-2.248)	(-1.951)	(-1.925)	(-1.925)
bsize	-0.002	-0.003***	-0.003***	-0.002	-0.003**	-0.003**
	(-1.583)	(-2.606)	(-2.606)	(-1.493)	(-2.464)	(-2.464)
bshl	0.173***	0.136**	0.136**	0.176***	0.140**	0.140**
	(2.728)	(2.462)	(2.462)	(2.801)	(2.539)	(2.539)
ind	-0.004	0.001	0.001	-0.004	0.001	0.001
	(-1.053)	(0.187)	(0.187)	(-1.057)	(0.275)	(0.275)
top1	-0.073***	-0.075***	-0.075***	-0.073***	-0.073***	-0.073***
	(-6.643)	(-2.916)	(-2.916)	(-6.644)	(-2.837)	(-2.837)
soe	0.032***	0.019*	0.019*	0.030***	0.019*	0.019*
	(2.893)	(1.829)	(1.829)	(2.750)	(1.776)	(1.776)
mshl	0.232*	0.182	0.182	0.229*	0.176	0.176
	(1.741)	(1.452)	(1.452)	(1.725)	(1.401)	(1.401)
roa	0.136***	0.138***	0.138***	0.131***	0.130***	0.130***
	(4.160)	(4.484)	(4.484)	(4.041)	(4.253)	(4.253)
lna	0.008***	0.005**	0.005**	0.008***	0.004**	0.004**
	(4.493)	(2.339)	(2.339)	(4.349)	(2.290)	(2.290)
cfoasset	-0.334***	-0.314***	-0.314***	-0.322***	-0.300***	-0.300***
	(-12.485)	(-13.498)	(-13.498)	(-12.085)	(-12.965)	(-12.965)
lev	-0.004***	-0.003***	-0.003***	-0.003***	-0.002***	-0.002***
	(-3.967)	(-3.378)	(-3.378)	(-3.699)	(-3.033)	(-3.033)
Constant	-0.009	0.069	0.069	-0.007	0.065	0.065
	(-0.247)	(1.191)	(1.191)	(-0.181)	(1.140)	(1.140)
Observations	10,251	10,251	10,251	10,251	10,251	10,251
R-squared	0.070	0.070	0.070	0.065	0.065	0.065
Adj. R-squared	0.068	0.068	0.068	0.063)	0.063	0.063

CEO_duality: that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality.

TOP1: represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:** is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

Table 6.26: OLS,2SLS and GMM Regression of the relationship between CEO and real earnings management

	Real_EM			Ab_real		
VARIABLES	**OLS**	**2SLS**	**GMM**	**OLS**	**2SLS**	**GMM**
ceod1	0.022*	0.177*	0.177*	0.020**	0.191**	0.191**
	(1.743)	(1.663)	(1.663)	(2.074)	(2.039)	(2.039)
ceotop1share	-0.038**	-0.099**	-0.099**	-0.012**	-0.101**	-0.101**
	(-2.447)	(-2.636)	(-2.636)	(-2.651)	(-2.939)	(-2.639)
bsize	-0.004	0.000	0.000	-0.004**	0.000	0.000
	(-1.478)	(0.008)	(0.008)	(-1.998)	(0.105)	(0.105)
bshl	0.067	0.043	0.043	-0.003	0.042	0.042
	(0.532)	(0.541)	(0.541)	(-0.037)	(0.704)	(0.704)
ind	-0.004	-0.005	-0.005	0.001	0.001	0.001
	(-0.742)	(-0.750)	(-0.750)	(0.366)	(0.244)	(0.244)
top1	-0.035	-0.020	-0.020	-0.025	0.020	0.020
	(-1.614)	(-0.417)	(-0.417)	(-1.481)	(0.585)	(0.585)
SOE	-0.013	-0.010	-0.010	0.017	0.040***	0.040***
	(-0.635)	(-0.635)	(-0.635)	(1.108)	(3.427)	(3.427)
mshl	0.012	0.222	0.222	0.042	0.045	0.045
	(0.052)	(1.272)	(1.272)	(0.277)	(0.342)	(0.342)
roa	-0.648***	-0.561***	-0.561***	-0.098***	-0.049	-0.049
	(-15.717)	(-14.889)	(-14.889)	(-2.951)	(-1.602)	(-1.602)
lna	0.045***	0.029***	0.029***	-0.002	-0.008***	-0.008***
	(9.224)	(7.651)	(7.651)	(-0.742)	(-3.118)	(-3.118)
cfoasset	0.670***	0.470***	0.470***	0.086***	-0.004	-0.004
	(19.416)	(13.113)	(13.113)	(2.904)	(-0.137)	(-0.137)
lev	0.008***	0.006***	0.006***	0.007***	0.006***	0.006***
	(3.777)	(4.328)	(4.328)	(4.375)	(5.873)	(5.873)
Observations	10,037	10,037	10,037	10,037	10,037	10,037
R-squared	0.079	0.079	0.079	0.096	0.096	0.096
Adj. R-squared	0.075	0.075	0.075	0.093	0.093	0.093

CEO_duality: that 1 is the CEO is duality as the chairman. **CEO_director**: that 1 is the CEO is duality as a director setting in the board **CEO_top10:** that 1 is the CEO is working for shareholders (top10). **CEO_top1:** represent that 1 is the CEO is working for the largest shareholder. **CEOtop1shl:** is CEO_top1 times TOP1 (the largest shareholder's shareholding).**Bsize:** represents board size. **BSHL:** represents the board shareholding ratio. **IND:** represents the percentage of independent directors sitting in the board. **CEO_duality:** representsCEO duality. **TOP1:** represents the largest shareholder's shareholding ratio.**SOE:** represents the percentage of a firm's total shares owned by SOE. **MSHL:** is the percentage of a firm's total shares owned by managers of firm; **ROA:** is the firm's return on total assets; **LNA:** is the natural log of assets; **LEV:**is the firm's leverage ratio; **CFO:** is the firm's cash flow from operating

In order to remove the impact of endogeneity on the result of the regression, this study uses 2SLS and GMM to test the regression result. And the result of the regression is steady. The impact of CEOtop1shl on the Ab_mjinv is negative significant at the 5

percent level, and the impact on the Ab_luinv is negative significant at the 10 percent level. The result of GMM is as same as the 2SLS.

For the impact on real earnings management. The impact of CEO_top1 on the Real_EM is positive significant at the 10 percent level and the impact on the Ab_real is positive significant at the 5 percent level. Moreover, the impact of CEOtop1shl is negative significant at 5 percent level no matter on Real_EM or Ab_real.

Overall. consider the endogeneity, the impact of the CEOtop1shl is still steady.

6.6 Conclusion

In conclusion, the characteristic of pyramid shareholding or cross-shareholding caused a separation of the largest shareholder's cash-flow right and control right, and it became the theoretical basis of large shareholders expropriation (La Porta, Lopez-de-Silanes et al. 2000). As the separation of the largest shareholder's cash-flow right and control right, the largest shareholder only needs to bear a little part of the cost and can get relatively more benefits from the firm. Therefore, the more separation between cash flow right and control right, the less large shareholders' loss by infringing the interests of the firm. Which meaning the motivation of the major shareholders against the interests of minority shareholders exists. Based on the above results, if the CEO is employees of the largest shareholder, the control rights of the largest shareholder were further strengthened. It makes easier for the largest shareholder to manipulate the firm's earnings to against interests of minority shareholders. Thus, when the CEO is working for the

largest shareholder, the level of earnings management will increase.

However, as the increase in the percentage of the largest shareholder's shareholding, the motivation of the largest shareholder against the private benefits is reduced. Because when the shareholder's shareholding is high enough that they can fully control the firm, the firm itself will become the private interests of the largest shareholder, and the significance of against the interests of minority shareholders will be gradually lost. In the result, the impact of the percentage of the largest shareholder's shareholding on the level of the firm's earnings management is significant negative. Furthermore, this impact of whether the CEO is an employee of the largest shareholder on earnings management will be influenced by the largest shareholder's shareholding. As the increase of the largest shareholder's shareholding, the impact of whether the CEO is an employee of the largest shareholder on earnings management will reduce from positive to negative.

In conclusion, if the controlling shareholder's shareholding at a low level, the relationship between the CEO and the controlling shareholder is a conflict with each other. However, as the increase of the controlling shareholder's shareholding, the CEO tends to cooperation with the controlling shareholder and help the controlling shareholder to improve the company's earnings management.

Chapter 7: Conclusion

7.1 Summary of research findings

Through the comparison and discussion about the difference between the new Chinese accounting standards and the IAS, the new Chinese accounting standard includes investment income into the company's earnings. However, according to the IAS rule, investment income is into the gains but not earnings. Therefore, in the Chinese market, the investment income is a part of earnings, but the Jones model does not measure it. Thus, this study adds the cash flow from investment to calculate the total accruals (TA) and combines the investment income to measure the discretionary accruals.

Moreover, through empirical analysis based on the investment matched Jones model, this study found that if the director has some financial background like professional title or work experience, the effect on accruals earnings management is negative. If a financial director is sitting on the board, the degree of the company's accruals earnings management tends to decrease. Moreover, the number of financial directors also effect on the degree of the firm's accruals earnings management. However, the impact of the financial directors on the company's real activist's earnings management is positive. Furthermore, if these directors are working from the controlling shareholder, the degree of the company's actual activities earnings management also will rise.In conclusion, financial directors tend to help the controlling shareholder to shift the company's accrual earnings management to the more hidden actual earnings management.

Furthermore, the relationship between the CEO and the controlling shareholder will change from conflict to cooperation as the increase of the controlling shareholder's shareholding. The relationship between the CEO and the controlling shareholder is conflicting when the controlling

shareholder's shareholding at a low level and the effect on the earnings management is negative. However, as the increasing of the controlling shareholder's shareholding, the CEO tends to collaborate with the controlling shareholder to manipulate the company's earnings.

7.2Summary of the contribution

The first contribution of this study is the Methodological contributions about earnings management. Previous research about earnings management generally based on the Jones model but did not consider the factor that the accounting standard may differ in different countries. And these difference may cause the inaccurate of the measurement of earnings management in different countries. If a researcher uses the erroneous result to detect the relationship between the earnings management and other factors, it will come to a conclusion that is not consistent with the facts and mislead subsequent studies. This study proposes to modify the model according to the local regulations, and improved the Jones model based on the Chinese accounting standard. It provides a more appropriate tool to post-location studies on Chinese earnings management.

Moreover, this study has contributions to the literature. Firstly, this paper has expanded the definition of the financial background beyond the CPA work experience. Then uses the empirical analysis based on the new modified model to find the result that a director with a financial background will help the company to reduce the accruals earnings management but to increase the real activities earnings management.Secondly, this paper has shown that the impact of the relationship between the CEO and the controlling shareholder on the company's earnings

management. When the largest shareholder's shareholding at a low level, the relationship between the CEO and the controlling shareholder is conflict, and the company's earnings management suppressed. However, as the increase of the controlling shareholder's shareholding, the CEO tends to help the controlling shareholder to again with minority shareholders.

At last, the agency theory has thoroughly discussed the relationship between managers and shareholders, and later Sheleifer and Vishny (1997) further proved the contradiction between majority shareholders and minority shareholders.However, what role do managers play in the conflict between large shareholders and small shareholders? Should managers help large shareholders to infringe the interests of small shareholders or help small shareholders to fight against and monitor large shareholders?The research in this aspect has been a blank of agency theory.

Based on the setting of whether the manager works for the major shareholders. This paper discusses the behaviour of the manager in the conflict between the majority shareholders and the minority shareholders, from the perspective of earnings management.It finds that the manager will help the majority shareholders to infringe the interests of the minor shareholders in the contradiction between the major shareholders and the minor shareholders, which makes up for the agency theory.

7.3 Limitations and Future Research Areas

Since the model of this paper is improved the Jones model according to the Chinese accounting standards. Thus, the improved Jones model only used for the Chinese market.In this study, we find

that generic models could not detect some factors' impact on the company's earnings management until we improve the Jones model based on the local accounting standard. From our study's result, we have reason to believe that the same problem exists in previous reviews about Chinese earnings management research. Therefore, one of the future research areas is to revalidate the results of earlier studies by the improved Jones model, to detect whether some missing factors can affect earnings management.

Secondly, China is not a particular case. Accounting standard differs from country to country. Therefore, studies in each state have to modify the common model following the local situation. However, most previous studies have not done that. Thus, the other future research area is to improve the Jones model in different states to ensure the accuracy of research results.

7.4 Advise

This study strongly suggests that researchers should be cautious in using existing models when conducting empirical studies, and must fully understand the assumptions and establishment of models when using models. Identify the context in which the model was created, the policies, and the laws and regulations that influenced it. Before use, we should carefully compare the existing conditions and the conditions of the model and make corresponding adjustments to ensure the accuracy of the study.

For investors, the findings of this study can effectively help investors make investment decisions. According to the findings of this study, if there are more people with a financial background in the company, the possibility, and extent of earnings management of the company is likely to be lower. Besides, this study also concludes that with the increase of the shareholding ratio of controlling shareholders and the difference in the relationship between CEO and controlling shareholders, the CEO is also likely to change his position to help controlling shareholders infringe on the interests of minority shareholders. Based on the above research results as a reference, investors are likely to avoid companies with earnings management risks when making investment decisions.

Finally, for regulators or policymakers, the findings of this study are also of reference significance. To reduce the risk of collusion between the CEO and the controlling shareholder to the detriment of the minority shareholder. At the same time, it can also strengthen the supervision of the corresponding companies to restrain their earnings manipulation.

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